HIDALGO CIRCLE SPEED STUDY

Souder, Miller & Associates
Engineering • Environmental • Surveying
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Hidalgo Cirlce
Speed Study
Final Report

Albuquerque, New Mexico

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City of Albuquerque

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INTRODUCTION

The City of Albuquerque – Department of Municipal Development (Traffic Engineering Design Division) has requested that Souder, Miller & Associates conduct at speed study along Hidalgo Circle in northwest Albuquerque.

1.A. PROJECT PURPOSE

A speed study on Hidalgo Circle from Fortuna Road to Glenrio Road was conducted to determine the following:

- Evaluate the 85th percentile speed along Hidalgo Circle at two (2) locations;
- Calculate average and daily peak hour traffic volumes along Hidalgo Circle.

As part of this study, an evaluation and cataloging of existing roadway conditions, collection of historical ADT, and crash data will be completed.

1.B. PROJECT DESCRIPTION

The study area will be a 0.20 mile (1056.00 LF) section of Hidalgo Circle from Fortuna Road to Glenrio Road. Figure 1.B.1. on this page displays the study location.

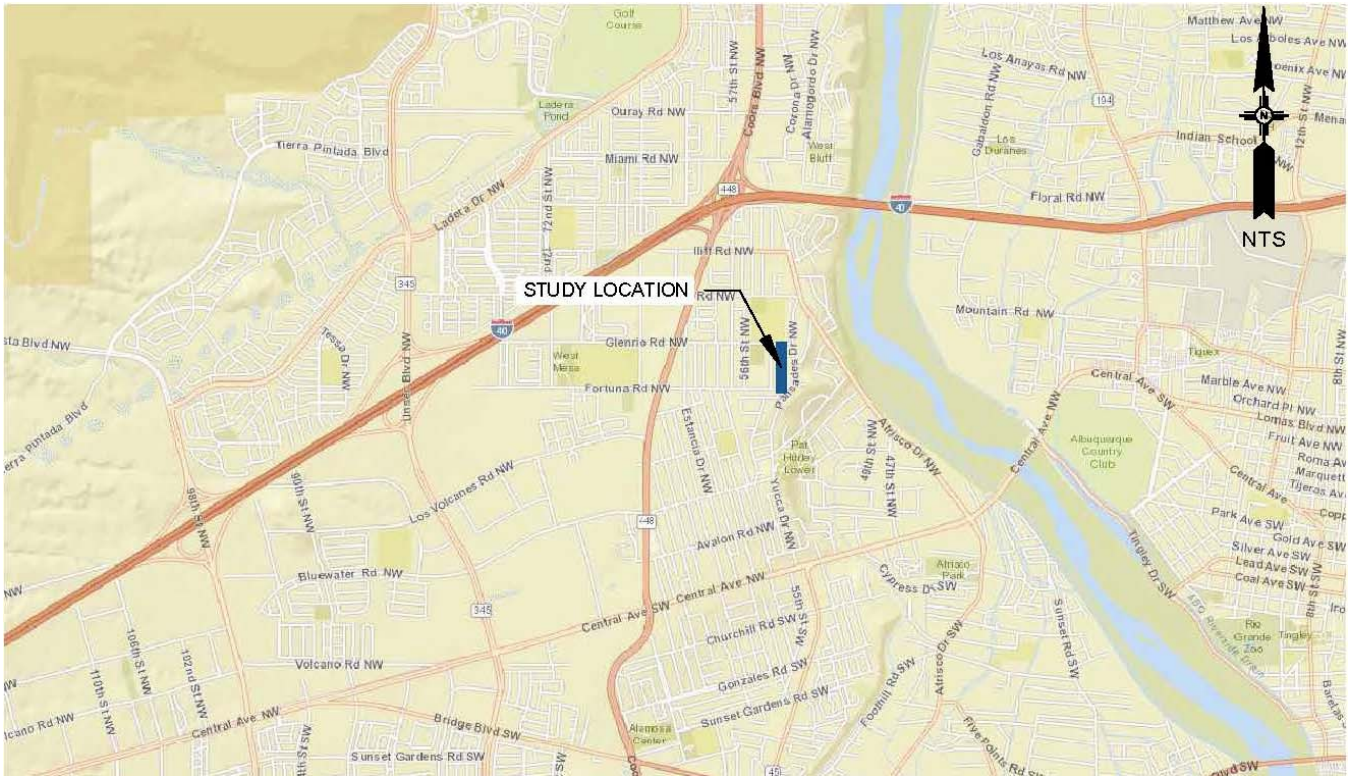

FIGURE 1.B.1
STUDY LOCATION

FIGURE 1.B.2.
STUDY LIMITS

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Drawing Name: P:\7-COA 2015 On-Call Traffic and NTMP (7424542)\Task #4 - Hidlago Drive Study\COA 6254.04\Studies\CADD\Hidalgo Drive Exhibits.dwg

1.C. BACKGROUND OF SPEED LIMITS

Speed limits are established on roadways of virtually all classifications, from interstate freeways to low volume local streets. The primary purpose of speed limits is to give motorists clear instruction as to what is a reasonable speed for them to drive at while traveling on a given roadway.

Among regulatory signage, speed limit signs arguably contain the most critical information that motorists need to be informed of while driving (next to stop signs, which are considered the highest impact regulatory sign). Drivers unfamiliar with a roadway often do not realize what characteristics the roadway has, and properly established speed limit signs give them the information they need to drive the roadway safely.

The NMDOT has guidelines for analyzing and establishing posted speed limits; the following text is based on one such example:

Realistic posted speed limits are of public importance for many reasons:

- They invite public compliance by conforming to the behavior or the driving majority
- They give clear reminders of safe and reasonable speeds to non-conforming violators
- They offer the most effective tool for law enforcement of safe driving
- They will minimize public antagonism toward law enforcement that results from unreasonable regulations

Improperly, or artificially low, posted speed limits can cause problems for state and local agencies for several reasons:

- They do not encourage voluntary compliance, since they do not reflect the behavior of the majority
- They make the behavior of the majority unlawful
- The maximize public antagonism toward law enforcement, since the perception is that the police are enforcing a “speed trap”
- The create a bad image for a community in the eyes of tourists / visitors

1.D. SETTING SPEED LIMITS

In accordance with Section 66-7-303 of the New Mexico Criminal and Traffic Law Manual, the speed limit on state highways shall be set by the Cabinet Secretary of the Department of Transportation, based on an engineering survey and traffic investigation that includes the following parameters.

- Spot speed studies (typically consisting of 100 vehicles)
- Roadway geometry/number of lanes
- Roadside environment and characteristics
- Building setbacks (if within a commercial business district)
- Driveway and intersection spacing/density
- Historical crash data for the roadway study area

Many speed limits are established using the theory of 85th percentile. Out of the (typically) 100 vehicles surveyed, beginning with the fasted vehicle speed recorded the 15th vehicle from that speed is determined to show where the 85th percentile speed is. This is assuming that most drivers (85%) drive within reasonable limits. The posted speed limit can be established and is usually the 5 – mph increment just below the 85th percentile speed. For example, if the 85th percentile speed

has been determined by an engineering survey to be 57 mph, the posted speed would be 55 mph. This method of posting speed limits allows for a reasonable posted speed limit that can be enforced by local agencies, without creating a speed trap.

For surveys with a different amount than 100 vehicles, the 85th percentile speed is determined by the following formula: 100/15 = # of vehicles surveyed/X (where x = the vehicle at the 85th percentile). For example, a 50 vehicle survey would result in:

$$\frac{100}{15} = \frac{50}{x}$$

Where *x* = 7.5, or the 8th vehicle in the survey

Other methods are frequently used to further analyze the posting of speed limits – these are the mode, median, and geometric mean:

- Mode is the most frequently clocked vehicle speed in a given survey. For example, in a 100 vehicle survey where 12 vehicles were clocked traveling 55 mph and no other speed was observed as frequently, the mode is 55 mph.
- Median is the numerical midpoint of a given survey. For example, in a survey of 100 vehicles, the speeds of the 50th and 51st vehicles are added and divided by 2 to obtain the median speed. If the 50th vehicle of such a survey was traveling at 56 mph and the 51st vehicle was also traveling at 56 mph, the resulting median would be (56 + 56)÷2 = 112÷2 = 56 mph
- Geometric mean is described as follows: "an average of a set of numbers that is calculated by multiplying all the numbers ("n"), and taking the nth root of the total."

Formula for Geometric Mean:

$$Geometric\ Mean = ((X_1)(X_2) \dots \dots (X_n))^{1/N}$$

X = Individual score (speed)
N = Sample size (number of scores)

Geometric Mean Example:
Sample speeds = 51, 52, 55, 58, and 60 mph

Step 1:
N = 5, the total number of values, $\frac{1}{N} = 0.2$
Step 2:
Determine geometric mean using the formula.

$$Geometric\ Mean = ((51)(52)(55)(58)(60))^{0.2} = 55.09\ mph$$

In most cases, the geometric mean of a speed study will be of similar value of the median, often within 1 to 2 mph of either side of the median. In the above example, the median speed would be the third vehicle surveyed (55 mph), and the geometric mean is 55.09 mph.

2. EXISTING CONDITIONS

2.A. COUNT LOCATIONS

The study area included one (1) volume and speed count location which was at the following locations:

- Hidalgo Circle north of Fortuna Road.

Figure 2.1. on page 6 displays the approximate traffic count location.

2.B. EXISTING CONDITIONS

Figure 2.2. on page 6 displays the existing typical section of Hidalgo Circle. Within the study limits are approximately 30 driveways that provide access to homes.

FIGURE 2.1.
COUNT LOCATION

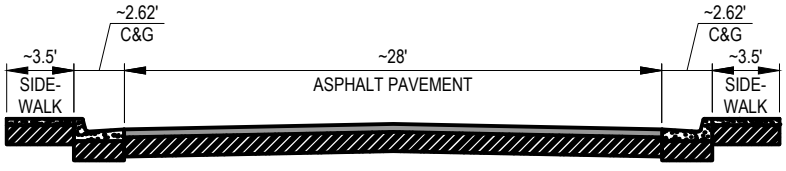

FIGURE 2.2.
EXISTING HIDALGO CIRCLE TYPICAL SECTION

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3. DATA

3.A. ADT

The ADT for the one (1) count location is listed below in Table 3.A.1.

Table 3.A.1.			
Hidalgo Circle ADT			
Count Location	NB	SB	ADT
Hidalgo Circle South	753	316	1069

The Hidalgo Circle study area directional ADT ranges from 316 to 753 vehicles per day.

3.B. PEAK HOUR TRAFFIC VOLUMES

The peak hour traffic volume for the one (1) count location is shown below in Table 3.B.1.

Table 3.B.1.			
Hidalgo Circle Peak Hour Traffic Volumes (vph)			
Count Location	Peak Hour	Northbound (Peak Hour)	Southbound (Peak Hour)
Hidalgo Circle South	AM Peak	136 (7:15 AM - 8:15 AM)	49 (7:15 AM - 8:15 AM)
	PM Peak	87 (2:30 PM - 3:30 PM)	48 (2:30 PM - 3:30 PM)

The Hidalgo Circle study area peak hour traffic volumes range from 48 to 136 vehicles per hour.

3.C. SPEED STUDY RESULTS

The result of the speed study is displayed below in Table 3.C.1.

Table 3.C.1.			
Hidalgo Circle South Speed Study			
Speed	NB	SB	Total
Average	28.6	25.5	27.7
10 mph Pace	25.0 - 34.9 (62.2%)	20.1 - 30.0 (67.6%)	25.0 - 34.9 (60.7%)
50th Percentile	29.1	26.5	28.1
67th Percentile	31.9	28.5	30.9
85th Percentile	34.9	32.1	34.3

When considering whether to establish a new posted speed limit or not, surveying the existing traffic speeds is crucial to determining a reasonable posted speed limit.

Before a posted speed limit can be adjusted, an analysis must be conducted to ascertain whether or not the speed limit can be adjusted without resulting in further increases of motorists' travel speeds. Motorists usually drive at speeds which they perceive as safe, based on the observable roadway conditions. A flat and straight roadway may result in a different travel speed than the posted speed limit due to the driver's observation of the roadway condition.

In relation to Hidalgo Circle, roadway conditions are consistent; controlled access, satisfactory pavement conditions, two travel lanes, and on-street parking. Table 3.C.2. displays that 72 percent of the total ADT of the count location recorded speeds greater than or equal the posted speed limit of 25 mph.

Table 3.C.2.							
Hidalgo Circle ADT ≥ 25 mph							
Speed (mph)	0 - 19.9 MPH		20 - 24.9 MPH		≥ 25 MPH		Avg. ADT
Hidalgo Circle South NB	48.5	6%	126	17%	578.5	77%	753
Hidalgo Circle South SB	34.5	11%	88	28%	193.5	61%	316
Total	83	8%	214	20%	772	72%	1069

3.D. CRASH DATA

Crash data was requested from the Mid-Region Council of Governments. The crash data requested showed there was 1 recorded crash within the study area from 2013 to 2015.

Table 3.D.1.					
Hidalgo Circle Crash Summary					
Year	Location	Cause of Crash	Crash Analysis	Crash Severity	Crash Correct with Traffic Calming?
2015	817 Hidalgo Cricle NW	Following Too Close	Other Vehicle - Both Going Straight / Entering at Angle	Property Damage Only	No

4. U.S. LIMITS SPEED LIMITS PROGRAM

U.S. Limits is an FHWA sponsored program used to analyze speed limits. This program calculates a recommended speed limit based on the criteria given, which is listed on the website as follows:

- Density of surrounding development (e.g. high density, low density, or rural);
- Frequency of roadside access (e.g. number of residential driveways, commercial, industrial, shopping, and special activity properties, and the number and type of intersection roads);
- Road function (e.g. traffic movement vs. access to abutting properties);
- Road characteristics (e.g. paved width, divided or undivided, lane width, number and lanes, and sight restrictions);
- Road conditions and important high speed road characteristics (e.g. interchange spacing, AADT, and shoulders);
- Existing vehicle operating speeds;
- Adjoining speed limits: and
- Any special conditions that may exist on the road section (e.g. adverse alignment, pedestrian and roadside activities, high crash rates, etc.)

This analysis was used for Hidalgo Circle and based on the data entered into http://www.uslimits.com for the above-listed categories. The output sheet is shown in Appendix A – U.S. Limits Output. The U.S. Limits Output recommended a speed limit of 30 mph.

5. CONCLUSION

After evaluating the volume and speed data within the project area, it is concluded that 72% of traffic is exceeding 25 mph and the 85th percentile for both the northbound and southbound traffic exceeds the speed limit by 5 mph or more. In order to meet criteria for traffic calming measures as outlined in the City of Albuquerque's Neighborhood Traffic Management Program, at least two (2) of the following threshold criteria must be met:

Figure 5.1.	
COA NMTP Traffic Calming Measures	
Description	Warranted?
Reported crashes in the past 3 years that could be corrected with traffic calming	No
Peak-hour traffic volume greater than 400 vehicles in one direction	No
25% of peak-hour traffic is non-local cut-through traffic	Not Studied
85th percentile speeds exceeds the posted speed limit by 5 mph or more	Yes

Based on the data collected, Hidalgo Circle DOES NOT meet two of the four warrants outlined for traffic calming criteria.

Appendices

- Appendix A – USLIMITS2 Speed Zoning Report
- Appendix B – Volume and Speed Data
- Appendix C – Crash Data

Appendix A

USLIMITS2 Speed Zoning Report

Project Name: Hidalgo Circle Speed Study

Analyst: Thaddeus Yazzie

Date: 04-24-2017

Basic Project Information
Project Number: COA 6254.04
Route Name: Hidalgo Circle
From: Fortuna Road
To: Glenrio Road
State: New Mexico
County: Bernalillo County
City: Albuquerque city
Route Type: Road Section in Developed Area
Route Status: Existing

Roadway Information
Section Length: .2 mile(s)
Statutory Speed Limit: 25 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Subdivision
Number of Driveways: 30
Number of Signals: 0

Crash Data Information
Crash Data Years: 3.08
Crash AADT: 1069 veh/day
Total Number of Crashes: 1
Total Number of Injury Crashes: 0
Section Crash Rate: 416 per 100 MVM
Section Injury Crash Rate: 0 per 100 MVM
Crash Rate Average for Similar Roads: 263
Injury Rate Average for Similar Roads: 67

Traffic Information
85th Percentile Speed: 34 mph
50th Percentile Speed: 28 mph
AADT: 1069 veh/day
On Street Parking and Usage: High
Pedestrian / Bicyclist Activity: High

Project Description: Hidalgo Circle Speed Study from Fortuna Road to Glenrio Road.

Recommended Speed Limit:

Note: The final recommended speed limit is higher than the statutory speed limit of **25 mph** for this type of road. An engineering study such as the one carried out with USLIMITS is usually required to set a speed limit above the statutory limit.

Note: The section crash rate of 416 per 100 MVM is more than 30 percent above the average for similar roads (263) but below the critical rate (1323). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.

Note: A section length of .2 miles is too short for speed zoning on public streets and roads for the recommended speed limit. You may consider lengthening the speed zone (if that is possible) or using the speed limits from adjacent sections (if they are appropriate for this section). If the 85th percentile speeds and other data you provided are representative of conditions for this short section, then the speed limit noted above should be considered. If the data were taken in a road section with adverse horizontal and vertical alignment, in a construction zone, or in a area with unique geometric and/or traffic control features, then the above noted speed limit may not be appropriate because this expert system is not designed to recommend speed limits for sharp horizontal curves, within the limits of construction zones, or in other special traffic situations.

Appendix B

Special Speed Study Report: Hildago Cir South

Station ID : Hildago Cir South
Info Line 1 : North of Fortuna
Info Line 2 : Albuquerque
GPS Lat/Lon :
DB File : HIL SOUTH.DB

Last Connected Device Type : Apollo
Version Number : 1.66
Serial Number :
Number of Lanes : 1
Posted Speed Limit : 0.0 mph

Lane #1 Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.		Northbound	Ax-Ax	4.0 ft	6.0 ft	

Lane #1 Special Speed Study Data From: 00:00 - 04/18/2017 To: 23:59 - 04/19/2017

Date	Time	#1 0 - 19.9	#2 20 - 24.9	#3 25 - 29.9	#4 30 - 34.9	#5 35 - 39.9	#6 40 - 44.9	#7 45 - 49.9	#8 50 - 54.9	#9 55 - 59.9	#10 60 - 64.9	#11 65 - 69.9	#12 70 - 74.9	#13 75 - 79.9	#14 80 - 84.9	#15 85 - 89.9	#16 Other	Total
04/18/17	00:00	0	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5
Tue	01:00	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
	02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	04:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	05:00	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	5
	06:00	0	5	10	9	6	1	1	0	0	0	0	0	0	0	0	0	32
	07:00	6	21	46	32	7	1	1	0	0	0	0	0	0	0	0	0	114
	08:00	0	6	22	27	8	3	0	0	0	0	0	0	0	0	0	0	66
	09:00	0	4	7	10	4	1	0	0	0	0	0	0	0	0	0	0	26
	10:00	5	9	6	10	5	2	1	0	0	0	0	0	0	0	0	0	38
	11:00	1	5	8	8	4	1	0	0	0	0	0	0	0	0	0	0	27
	12:00	4	8	14	12	3	0	0	0	0	0	0	0	0	0	0	0	41
	13:00	3	5	11	9	8	1	0	0	0	0	0	0	0	0	0	0	37
	14:00	3	15	23	21	5	1	0	0	0	0	0	0	0	0	0	0	68
	15:00	3	8	16	14	10	6	0	0	0	0	0	0	0	0	0	0	57
	16:00	4	2	11	17	5	3	0	0	0	0	0	0	0	0	0	0	42
	17:00	3	4	21	10	7	1	1	0	0	0	0	0	0	0	0	0	47
	18:00	3	8	15	17	3	0	0	0	0	0	0	0	0	0	0	0	46
	19:00	4	7	14	4	2	1	0	0	0	0	0	0	0	0	0	0	32
	20:00	0	7	12	9	3	1	0	0	0	0	0	0	0	0	0	0	32
	21:00	1	6	8	4	2	0	0	0	0	0	0	0	0	0	0	0	21
	22:00	0	4	4	2	1	0	0	0	0	0	0	0	0	0	0	0	11
	23:00	1	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	7
Daily Total :		42	129	254	222	84	25	4	0	0	0	0	0	0	0	0	0	760
Percent :		6%	17%	33%	29%	11%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :		6%	23%	56%	85%	96%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :		2	5	11	9	4	1	0	0	0	0	0	0	0	0	0	0	32

Average Speed 28.8 mph 50% Speed : 29.0 mph 67% Speed : 31.9 mph 85% Speed : 35.0 mph
10mph Pace: 25.0 - 34.9 (62.6%)

Date	Time	#1 0 - 19.9	#2 20 - 24.9	#3 25 - 29.9	#4 30 - 34.9	#5 35 - 39.9	#6 40 - 44.9	#7 45 - 49.9	#8 50 - 54.9	#9 55 - 59.9	#10 60 - 64.9	#11 65 - 69.9	#12 70 - 74.9	#13 75 - 79.9	#14 80 - 84.9	#15 85 - 89.9	#16 Other	Total
04/19/17	00:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wed	01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	03:00	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
	04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	05:00	0	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	8
	06:00	1	4	6	6	4	1	0	0	0	0	0	0	0	0	0	0	22
	07:00	2	19	33	31	18	3	0	0	0	0	0	0	0	0	0	0	106
	08:00	4	6	26	25	9	4	0	0	0	0	0	0	0	0	0	0	74
	09:00	1	4	5	10	3	0	0	0	0	0	0	0	0	0	0	0	23
	10:00	1	3	9	8	1	2	0	0	0	0	0	0	0	0	0	0	24
	11:00	1	9	10	13	5	2	0	0	0	0	0	0	0	0	0	0	40
	12:00	4	2	17	14	7	1	1	0	0	0	0	0	0	0	0	0	46
	13:00	7	6	8	11	1	0	0	0	0	0	0	0	0	0	0	0	33
	14:00	7	16	16	16	5	1	0	0	0	0	0	0	0	0	0	0	61
	15:00	3	3	30	18	4	2	0	0	0	0	0	0	0	0	0	0	60
	16:00	1	5	14	10	7	2	1	0	0	0	0	0	0	0	0	0	40
	17:00	1	9	22	24	5	0	0	0	0	0	0	0	0	0	0	0	61
	18:00	4	7	13	13	6	1	0	0	0	0	0	0	0	0	0	0	44
	19:00	8	9	10	6	4	0	0	0	0	0	0	0	0	0	0	0	37
	20:00	6	9	8	4	2	0	0	0	0	0	0	0	0	0	0	0	29
	21:00	0	6	5	6	2	0	0	0	0	0	0	0	0	0	0	0	19
	22:00	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	6
	23:00	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Daily Total :		55	123	239	222	85	20	2	0	0	0	0	0	0	0	0	0	746
Percent :		7%	16%	32%	30%	11%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :		7%	24%	56%	86%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :		2	5	10	9	4	1	0	0	0	0	0	0	0	0	0	0	31

Average Speed 28.4 mph 50% Speed : 29.1 mph 67% Speed : 31.9 mph 85% Speed : 34.9 mph
10mph Pace: 25.0 - 34.9 (61.8%)

Lane #3 Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
3.		Southbound	Ax-Ax	4.0 ft	6.0 ft	

Lane #3 Special Speed Study Data From: 00:00 - 04/18/2017 To: 23:59 - 04/19/2017

Date	Time	#1 0 - 19.9	#2 20 - 24.9	#3 25 - 29.9	#4 30 - 34.9	#5 35 - 39.9	#6 40 - 44.9	#7 45 - 49.9	#8 50 - 54.9	#9 55 - 59.9	#10 60 - 64.9	#11 65 - 69.9	#12 70 - 74.9	#13 75 - 79.9	#14 80 - 84.9	#15 85 - 89.9	#16 Other	Total
04/18/17	00:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tue	01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	07:00	2	7	15	6	1	1	0	0	0	0	0	0	0	0	0	0	32
	08:00	1	8	11	3	3	0	0	0	0	0	0	0	0	0	0	0	26
	09:00	1	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	7
	10:00	0	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	6
	11:00	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	6
	12:00	4	7	6	2	1	0	0	0	0	0	0	0	0	0	0	0	20
	13:00	4	4	6	4	1	1	0	0	0	0	0	0	0	0	0	0	20
	14:00	2	5	9	5	1	0	0	0	0	0	0	0	0	0	0	0	22
	15:00	3	13	10	8	3	0	0	0	0	0	0	0	0	0	0	0	37
	16:00	2	6	11	10	2	1	0	0	0	0	0	0	0	0	0	0	32
	17:00	2	5	13	8	0	0	0	0	0	0	0	0	0	0	0	0	28
	18:00	1	1	9	4	0	0	0	0	0	0	0	0	0	0	0	0	15
	19:00	4	6	6	2	0	0	1	0	0	0	0	0	0	0	0	0	19
	20:00	3	5	4	1	0	0	0	0	0	0	0	0	0	0	0	0	13
	21:00	1	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	9
	22:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	23:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Daily Total :		32	78	116	58	14	3	1	0	0	0	0	0	0	0	0	0	302
Percent :		11%	26%	38%	19%	5%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :		11%	36%	75%	94%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :		1	3	5	2	1	0	0	0	0	0	0	0	0	0	0	0	12

Average Speed 26.0 mph 50% Speed : 27.0 mph 67% Speed : 28.6 mph 85% Speed : 32.6 mph
10mph Pace: 20.1 - 30.0 (64.2%)

Date	Time	#1 0 - 19.9	#2 20 - 24.9	#3 25 - 29.9	#4 30 - 34.9	#5 35 - 39.9	#6 40 - 44.9	#7 45 - 49.9	#8 50 - 54.9	#9 55 - 59.9	#10 60 - 64.9	#11 65 - 69.9	#12 70 - 74.9	#13 75 - 79.9	#14 80 - 84.9	#15 85 - 89.9	#16 Other	Total
04/19/17	00:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Wed	01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	06:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	07:00	0	8	15	6	2	1	0	0	0	0	0	0	0	0	0	0	32
	08:00	1	10	12	4	1	0	0	0	0	0	0	0	0	0	0	0	28
	09:00	2	7	6	0	1	0	0	0	0	0	0	0	0	0	0	0	16
	10:00	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	5
	11:00	0	8	3	4	0	0	0	0	0	0	0	0	0	0	0	0	15
	12:00	6	7	3	3	0	0	0	0	0	0	0	0	0	0	0	0	19
	13:00	5	6	6	1	1	0	0	0	0	0	0	0	0	0	0	0	19
	14:00	3	8	7	4	0	0	0	0	0	0	0	0	0	0	0	0	22
	15:00	2	14	22	6	1	0	0	0	0	0	0	0	0	0	0	0	45
	16:00	2	8	16	8	0	0	0	0	0	0	0	0	0	0	0	0	34
	17:00	1	2	16	7	0	0	0	0	0	0	0	0	0	0	0	0	26
	18:00	3	3	8	2	1	0	0	0	0	0	0	0	0	0	0	0	17
	19:00	6	7	7	2	0	0	0	0	0	0	0	0	0	0	0	0	22
	20:00	0	5	4	2	0	0	0	0	0	0	0	0	0	0	0	0	11
	21:00	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	6
	22:00	4	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	23:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Daily Total :		37	98	133	53	8	1	0	0	0	0	0	0	0	0	0	0	330
Percent :		11%	30%	40%	16%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :		11%	41%	81%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :		2	4	6	2	0	0	0	0	0	0	0	0	0	0	0	0	14

Average Speed 25.1 mph 50% Speed : 26.4 mph 67% Speed : 28.1 mph 85% Speed : 31.6 mph
10mph Pace: 20.1 - 30.0 (70.0%)

Date	Time	#1 0 - 19.9	#2 20 - 24.9	#3 25 - 29.9	#4 30 - 34.9	#5 35 - 39.9	#6 40 - 44.9	#7 45 - 49.9	#8 50 - 54.9	#9 55 - 59.9	#10 60 - 64.9	#11 65 - 69.9	#12 70 - 74.9	#13 75 - 79.9	#14 80 - 84.9	#15 85 - 89.9	#16 Other	Total

Special Speed Study Summary: Hildago Cir South

Description	#1 0 - 19.9	#2 20 - 24.9	#3 25 - 29.9	#4 30 - 34.9	#5 35 - 39.9	#6 40 - 44.9	#7 45 - 49.9	#8 50 - 54.9	#9 55 - 59.9	#10 60 - 64.9	#11 65 - 69.9	#12 70 - 74.9	#13 75 - 79.9	#14 80 - 84.9	#15 85 - 89.9	#16 Other	Total
Grand Total #1:	97	252	493	444	169	45	6	0	0	0	0	0	0	0	0	0	1506
Percent :	6%	17%	33%	29%	11%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :	6%	23%	56%	85%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :	2	5	10	9	4	1	0	0	0	0	0	0	0	0	0	0	31

ADT = 753

Average Speed 28.6 mph 50% Speed : 29.1 mph 67% Speed : 31.9 mph 85% Speed : 34.9 mph
10mph Pace: 25.0 - 34.9 (62.2%)

Grand Total #3:	69	176	249	111	22	4	1	0	0	0	0	0	0	0	0	0	632
Percent :	11%	28%	39%	18%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :	11%	39%	78%	96%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	12

ADT = 316

Average Speed 25.5 mph 50% Speed : 26.5 mph 67% Speed : 28.5 mph 85% Speed : 32.1 mph
10mph Pace: 20.1 - 30.0 (67.6%)

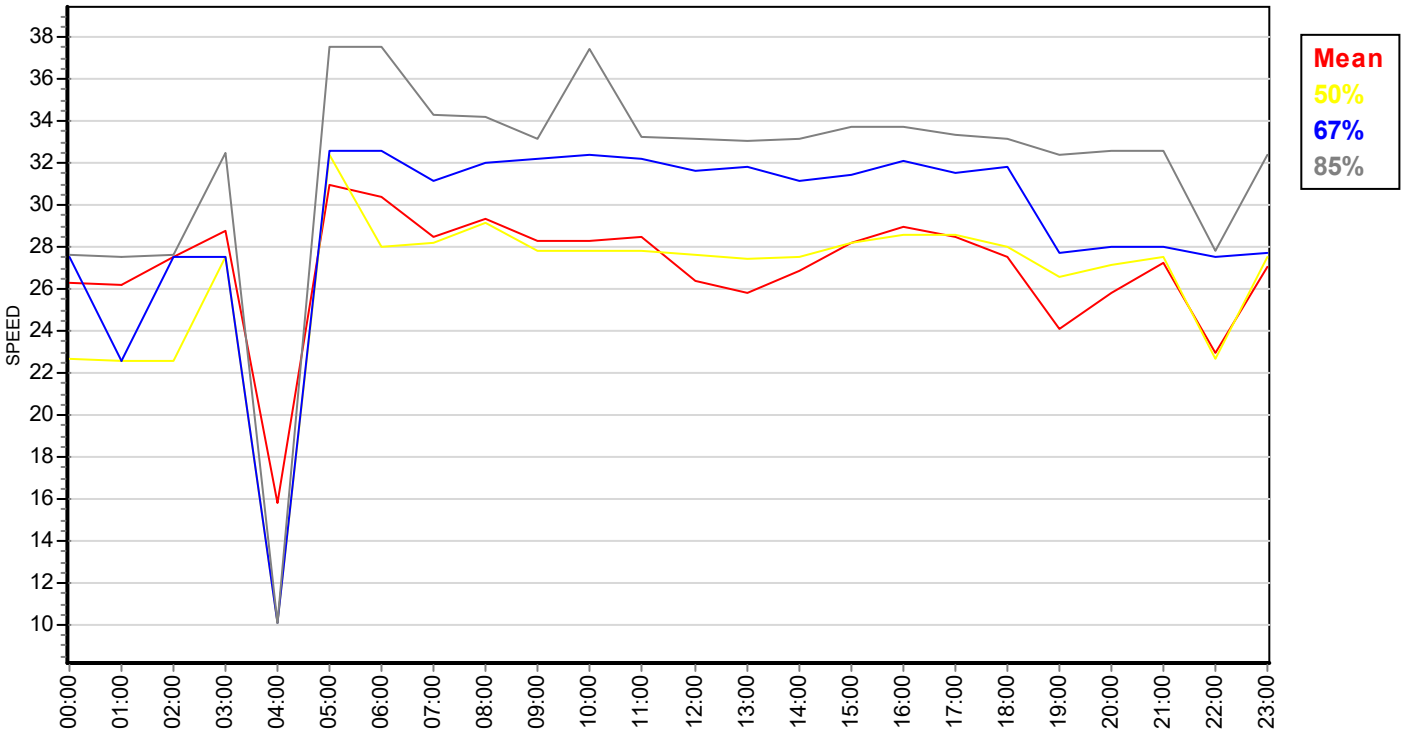
Comb. Total :	166	428	742	555	191	49	7	0	0	0	0	0	0	0	0	0	2138
Percent :	8%	20%	35%	26%	9%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cum. Percent :	8%	28%	62%	88%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Average :	3	9	15	12	4	1	0	0	0	0	0	0	0	0	0	0	44

ADT = 1069

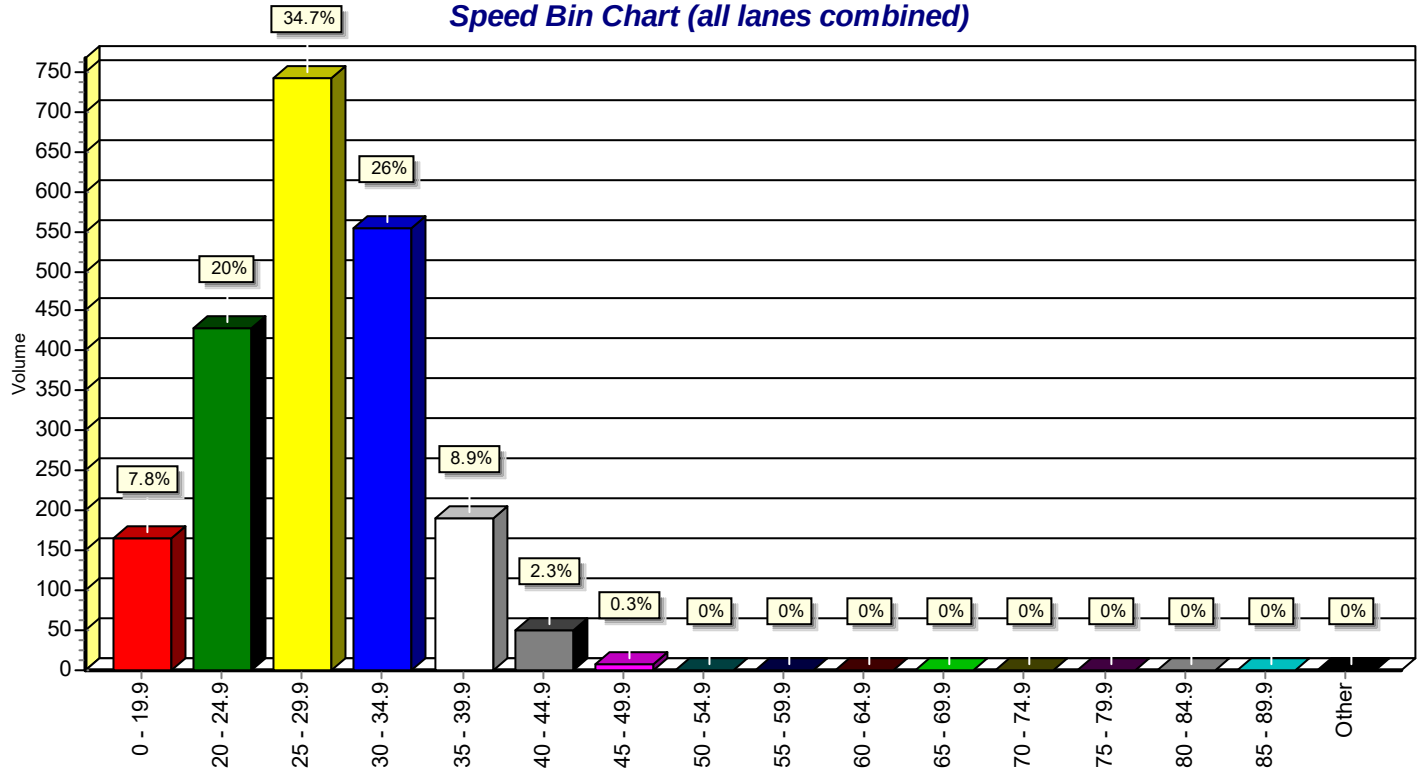
Average Speed 27.7 mph 50% Speed : 28.1 mph 67% Speed : 30.9 mph 85% Speed : 34.3 mph
10mph Pace: 25.0 - 34.9 (60.7%)

Hildago Cir South Charts For Data From: 00:00 - 04/18/2017 To: 23:59 - 04/19/2017

Speed Percent vs. Time (all lanes)



Speed Bin Chart (all lanes combined)



Basic Volume Report: Hildago Cir South

Station ID : Hildago Cir South
Info Line 1 : North of Fortuna
Info Line 2 : Albuquerque
GPS Lat/Lon :
DB File : HIL SOUTH.DB

Last Connected Device Type : Apollo
Version Number : 1.66
Serial Number :
Number of Lanes : 1
Posted Speed Limit : 0.0 mph

Lane #1 Configuration

#	Dir.	Information	Volume Mode	Volume Sensors	Divide By 2	Comment
1.		Northbound	Normal	Veh.	No	

Lane #1 Basic Volume Data From: 00:00 - 04/18/2017 To: 23:59 - 04/19/2017

Date	Time	:00	:15	:30	:45	Total
04/18/17	00:00	2	1	1	1	5
Tue	01:00	0	2	0	1	3
	02:00	0	0	1	0	1
	03:00	0	0	0	0	0
	04:00	0	1	1	0	2
	05:00	0	2	0	3	5
	06:00	5	5	9	13	32
	07:00	11	19	36	48	114
	08:00	28	13	13	12	66
	09:00	5	10	2	9	26
	10:00	13	6	6	13	38
	11:00	9	8	4	6	27
	12:00	12	6	16	7	41
	13:00	9	4	11	13	37
	14:00	16	8	16	28	68
	15:00	22	18	9	8	57
	16:00	16	6	8	12	42
	17:00	17	8	13	9	47
	18:00	13	12	8	13	46
	19:00	9	10	5	8	32
	20:00	4	10	12	6	32
	21:00	1	8	9	3	21
	22:00	4	3	1	3	11
	23:00	2	0	1	4	7
Day Total :						760

AM Total :	319 (42.0%)	Peak AM Hour : 07:15 =	131 (17.2%)	Peak AM Factor : 0.682	Average Period : 7.9
PM Total :	441 (58.0%)	Peak PM Hour : 14:30 =	84 (11.1%)	Peak PM Factor : 0.750	Average Hour : 31.7

Date	Time	:00	:15	:30	:45	Total
04/19/17	00:00	1	1	0	0	2
Wed	01:00	0	0	0	0	0
	02:00	2	1	0	0	3
	03:00	0	1	1	1	3
	04:00	0	0	1	0	1
	05:00	1	2	3	2	8
	06:00	7	3	5	7	22
	07:00	10	26	28	42	106
	08:00	40	15	13	6	74
	09:00	7	4	4	8	23
	10:00	5	7	9	3	24
	11:00	8	7	10	15	40
	12:00	11	15	11	9	46
	13:00	11	10	4	8	33
	14:00	11	5	16	29	61
	15:00	30	12	8	10	60
	16:00	10	6	11	13	40
	17:00	13	21	19	8	61
	18:00	17	7	11	9	44
	19:00	10	8	10	9	37
	20:00	7	5	6	11	29
	21:00	4	3	10	2	19
	22:00	4	1	1	0	6
	23:00	0	2	0	2	4
Day Total :						746

AM Total :	306 (41.0%)	Peak AM Hour : 07:15 =	136 (18.2%)	Peak AM Factor : 0.810	Average Period : 7.8
PM Total :	440 (59.0%)	Peak PM Hour : 14:30 =	87 (11.7%)	Peak PM Factor : 0.725	Average Hour : 31.1

Lane #3 Configuration

#	Dir.	Information	Volume Mode	Volume Sensors	Divide By 2	Comment
3.		Southbound	Normal	Veh.	No	

Lane #3 Basic Volume Data From: 00:00 - 04/18/2017 To: 23:59 - 04/19/2017

Date	Time	:00	:15	:30	:45	Total
04/18/17	00:00	1	0	0	0	1
Tue	01:00	0	0	0	0	0
	02:00	1	0	0	0	1
	03:00	0	0	0	0	0
	04:00	0	0	0	0	0
	05:00	0	0	2	0	2
	06:00	0	0	0	0	0
	07:00	3	5	12	12	32
	08:00	16	5	4	1	26
	09:00	1	4	1	1	7
	10:00	1	1	0	4	6
	11:00	3	2	0	1	6
	12:00	12	2	4	2	20
	13:00	1	5	8	6	20
	14:00	6	9	3	4	22
	15:00	21	8	5	3	37
	16:00	4	11	5	12	32
	17:00	5	8	9	6	28
	18:00	4	6	3	2	15
	19:00	5	7	2	5	19
	20:00	5	4	2	2	13
	21:00	2	3	3	1	9
	22:00	1	2	0	0	3
	23:00	2	0	1	0	3
Day Total :						302

AM Total :	81 (26.8%)	Peak AM Hour :	07:15 =	45 (14.9%)	Peak AM Factor :	0.703	Average Period : 3.1
PM Total :	221 (73.2%)	Peak PM Hour :	14:45 =	38 (12.6%)	Peak PM Factor :	0.452	Average Hour : 12.6

Date	Time	:00	:15	:30	:45	Total
04/19/17	00:00	0	0	1	0	1
Wed	01:00	1	0	0	0	1
	02:00	0	0	0	0	0
	03:00	0	0	1	0	1
	04:00	0	0	0	0	0
	05:00	0	0	0	0	0
	06:00	0	0	0	1	1
	07:00	2	9	8	13	32
	08:00	19	2	4	3	28
	09:00	0	7	4	5	16
	10:00	1	1	1	2	5
	11:00	0	9	2	4	15
	12:00	2	5	5	7	19
	13:00	1	5	4	9	19
	14:00	3	4	9	6	22
	15:00	26	7	5	7	45
	16:00	7	17	5	5	34
	17:00	5	7	13	1	26
	18:00	5	3	5	4	17
	19:00	8	10	3	1	22
	20:00	4	2	2	3	11
	21:00	2	1	2	1	6
	22:00	2	3	2	1	8
	23:00	0	0	1	0	1
Day Total :						330

AM Total :	100 (30.3%)	Peak AM Hour : 07:15 =	49 (14.8%)	Peak AM Factor : 0.645	Average Period : 3.4
PM Total :	230 (69.7%)	Peak PM Hour : 14:30 =	48 (14.5%)	Peak PM Factor : 0.462	Average Hour : 13.8

Basic Volume Summary: Hildago Cir South

Grand Total For Data From: 00:00 - 04/18/2017 To: 23:59 - 04/19/2017

Lane	Total Count		# Of Days	ADT	Avg. Period	Avg. Hour	AM Total & Percent	PM Total & Percent
#1.	1506	(70.4%)	2.00	753	7.8	31.4	625 (41.5%)	881 (58.5%)
#3.	632	(29.6%)	2.00	316	3.3	13.2	181 (28.6%)	451 (71.4%)
ALL	2138		2.00	1069	11.1	44.6	806 (37.7%)	1332 (62.3%)

Lane	Peak AM Hour		Date	Peak AM Factor	Peak PM Hour		Date	Peak PM Factor
#1.	07:15 =	136	04/19/2017	0.810	14:30 =	87	04/19/2017	0.725
#3.	07:15 =	49	04/19/2017	0.645	14:30 =	48	04/19/2017	0.462

Appendix C

OBJECTID	ReportIDSt	Date	CrashDate	Year
372152	15.710273429	12/21/2015	20151221	2015

OBJECTID	Day	Month	Time24	Hour24
372152	2	12	1402	0

OBJECTID	Agency	County	City	AStreet
372152	3	1	7825	817 HIDALGO CI NW

OBJECTID	BStreet	Landmark	Route	MilePost
372152				0

OBJECTID	NumVeh	NumPersons	NumKilled	NumClassA
372152	2	2	0	0

OBJECTID	NumClassB	NumClassC	NumInjured	NumUnhurt
372152	0	0	0	2

OBJECTID	Severity	Class	Analysis	TOPCACC
372152	Property Damage Only Crash	4	Other Vehicle - Both Going Straight/Entering At Angle	Following Too Close

OBJECTID	Weather	Lighting	ALCInv	DRUGInv
372152	1	1	F	F

OBJECTID	PEDInv	MCInv	PECInv	TrkInv
372152	F	F	F	F

OBJECTID	HZInv	HitRun	SHTDProp	System
372152	F	F	0	2

OBJECTID	MaxDam	RoadRel	Character	Grade
372152	2	T	F	8

OBJECTID	NonLocal	Measure	MeasureUni	Direction
372152	1	LeftBlank		S

OBJECTID	TranDist	MaintDist	SPDist
372152	3	3	5

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