



# **The Town of Hilton Head Island Intergovernmental and Public Safety Committee Special Meeting**

**March 7, 2019**

**10:00 a.m. – Benjamin M. Racusin Council Chambers**

## **AGENDA**

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**As a Courtesy to Others Please Turn Off All Cell Phones and Pagers during the Meeting**

- 1. Call to Order**
- 2. Freedom of Information Act Compliance**  
Public notification of this meeting has been published, posted, and mailed in compliance with the Freedom of Information Act and the Town of Hilton Head Island requirements.
- 3. Approval of Minutes**
  - a. None.
- 4. Unfinished Business**
- 5. New Business**
  - a. US 278 Business – Speed Limit Review
- 6. Adjournment**

**Please note that a quorum of Town Council may result if four (4) or more of Town Council members attend this meeting.**



# TOWN OF HILTON HEAD ISLAND

## *Public Projects and Facilities Management Department*

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**TO:** Stephen G. Riley, ICMA-CM, Town Manager  
**VIA:** Josh Gruber, Assistant Town Manager  
Scott Liggett, PE, Director of PP&F/Chief Engineer  
**FROM:** Jeff Buckalew, PE, Town Engineer  
**CC:** Darrin Shoemaker, PE, Town Transportation and Traffic Engineer  
**DATE:** February 7, 2019  
**SUBJECT:** US 278 (Business) Speed Limit Study by SCDOT

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### **Recommendation**

Staff has no recommendation for action based on the findings of this study. However, Town Council may seek to discuss data driven, high-visibility enforcement strategies with the Beaufort County Sheriff's Office.

### **Summary:**

At the request of Town Council, the South Carolina Department of Transportation (SCDOT) conducted a speed limit study on US 278 (Bus.) from Squire Pope Road to Sea Pines Circle. Their study (Exhibit 1) concluded that the 45 MPH posted speed limit is most appropriate and found that an average of 84% of the vehicles sampled exceeded the posted speed limit along the study corridor. The study corridor was divided into three zones (Zone 1: Squire Pope Road to Northridge Drive, Zone 2 Northridge Drive to Shelter Cove Lane signal at Hickory Tavern, and Zone 3 Shelter Cove Lane signal at Hickory Tavern to the end of the 45 MPH posting just past New Orleans Road).

The 85 percentile speed is used by engineers to assign a statistical measure of what most prudent drivers find to be an appropriate and comfortable speed. Although there are other factors used in setting the posted limits, it is important to acknowledge that the posted speeds on US 278 (Bus.) are set more than 5 MPH below this widely used metric. Exhibit 1 shows the normal distribution of speed data in each zone.

In Zone 1 the 85th percentile was 51 MPH, the average speed was 47 MPH, and 68 out of 100 vehicles sampled were found exceeding the posted speed limit

In Zone 2 the 85th percentile was 55 MPH, the average speed was 51 MPH and 95 out of 100 vehicles sampled were found exceeding the posted speed limit

In Zone 3 the 85th percentile was 54 MPH, the average speed was 50 MPH and 89 out of 100 vehicles sampled were found exceeding the posted speed limit

### **Background:**

At their September 10, 2018 meeting, the Public Safety Committee unanimously approved a motion directing staff to request the South Carolina Department of Transportation (SCDOT) conduct a speed limit study on US 278 (Bus.) from Squire Pope Road to Sea Pines Circle. Staff made that request of the SCDOT and they delivered the study results on January 2, 2019. The results were as expected by engineering staff, that the 45 MPH posted speed limit is most appropriate and that there are a significant number of vehicles exceeding the speed limit.

January 2, 2019

Mr. Jeff Buckalew, P.E.  
Town of Hilton Head  
One Town Center Court  
Hilton Head Island, South Carolina 29928

RE: US 278 Business – Speed Limit Review

Dear Mr. Buckalew:

Thank you for your email requesting a speed study on US 278 Business. We have completed our review, and a copy of our study is enclosed for your information.

Due to the length of the roadway requested for review, the study was divided into three segments. Based on the results of our analysis, no change is recommended to the existing 45 mph speed limit in any of the segments. Additionally, our study found that an average of 84 percent of the vehicles sampled exceeded the posted speed limit along US 278 Business. By copy of this letter, we are notifying the Beaufort County Sheriff's Office of our findings.

We regret that we were unable to concur with your request. If you have any questions, please do not hesitate to contact our Traffic Engineering office at 843-740-1665.

Sincerely,



Joshua A. Johnson, PE, PTOE  
District Traffic Engineer

JAJ: sjs  
Enclosure  
ec: Timothy R. Henderson, P.E., P.L.S., District Engineering Administrator  
cc: P.J. Tanner, Beaufort County Sheriff  
File: D6/Beaufort/SJS



## US 278 Business – Speed Limit Review

A speed limit review was conducted on US 278 Business for the 45 mph section from Squire Pope Road to just east of Sea Pines Circle, to determine the appropriate speed limit for this section of road. This study consisted of a review of land use and development, a collision history analysis, and a vehicle radar sample to collect speed data. These elements were reviewed and used in combination to provide a comprehensive overview to determine the appropriate speed limit, with guidance from the Federal Highway Administration (FHWA) analysis program, USLIMITS2.

The entire study section is 8.79 miles in length and begins at Squire Pope Road and terminates just east of Sea Pines Circle. US 278 Business is an urban-principal arterial road and consists of residential home complexes, businesses and commercial shopping complexes. Due to road characteristics and length of the section, the study section was divided into three zones. A speed study was conducted for each section with 100 vehicles sampled for each zone.

Zone 1 is 3 miles in length and extends from Squire Pope Road to North Ridge Drive. The posted speed limit in Zone 1 is 45 mph. This section of US 278 Business has a three-foot grass shoulder on the west side and a three-foot grass shoulder on the east side. Zone 1 has forty-five access points, of which fifteen are driveways and thirty are side streets. There are six traffic signals located along this study section. The 85<sup>th</sup> percentile speed, a statistical measure employed by engineers to determine what most prudent drivers find to be an appropriate and comfortable speed, was calculated to be 51 mph. Our study found that 68 percent of vehicles sampled exceeded the posted speed limit.

Zone 2 is also 3 miles in length and extends from North Ridge Drive to Mall Boulevard. The posted speed limit in Zone 2 is 45 mph. Zone 2 has a three-foot grass shoulder on the west side and a three-foot grass shoulder on the east side. Zone 2 has forty-six access points, of which twenty are side streets and twenty-six are driveways. There are seven traffic signals located along this study section. The 85<sup>th</sup> percentile speed was calculated to be 55 mph. Our study found that 95 percent of vehicles sampled exceeded the posted speed limit.

Zone 3 is 2.79 miles in length and extends from Mall Boulevard to just east of Sea Pines Circle. The posted speed limit in Zone 3 is 45 mph. Zone 3 has a four-foot grass shoulder on the west side and a three-foot grass shoulder on the east side. Zone 3 has fifty-five access points, of which seventeen are side streets and thirty-eight are driveways. There are six traffic signals located along this section. The 85<sup>th</sup> percentile speed was calculated to be 54 mph. Our study found that 89 percent of vehicles sampled exceeded the posted speed limit.

An analysis of the collision history was performed using the information from the Department of Public Safety database. The review period was from January 2015 to June 2018. During this time period, there were 511 collisions for Zone 1, 219 collisions for Zone 2, and 205 collisions for Zone 3. The top two collision types for the study sections were rear end and angle collisions. In Zone 1, there were 301 rear end collisions and 114 angle collisions. In Zone 2, there were 103 rear end collisions and fifty-four angle collisions. Zone 3 had 117 rear end collisions and forty-seven angle collisions.

**Recommendations:**

Based on the results of our study, roadside development, and guidance from USLIMITS2, it is not recommended to change the speed limit along US 278 Business. The speed limit is appropriate for existing development and roadway characteristics.

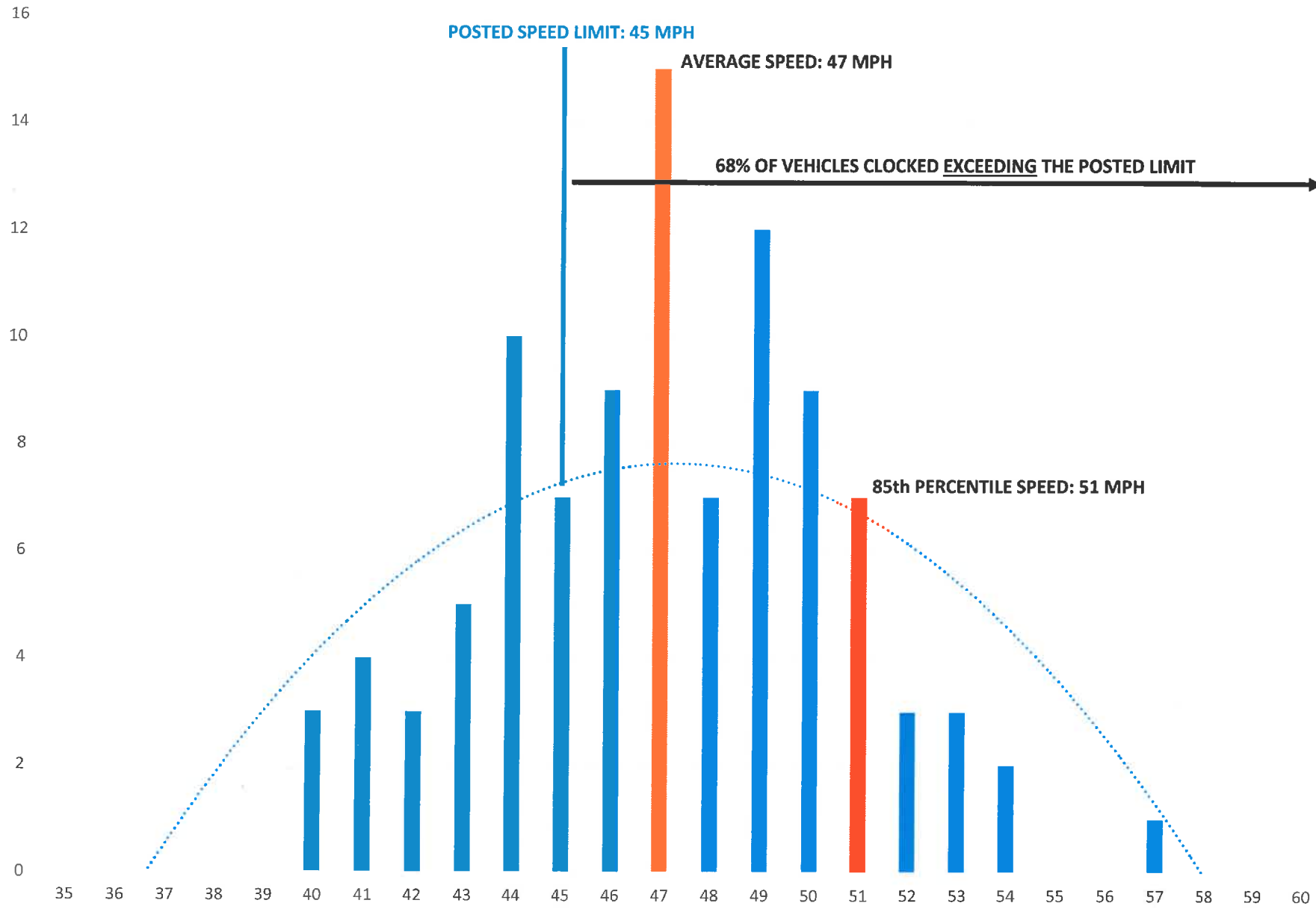
S. Smalls

Reviewed By: AP 12/21/18

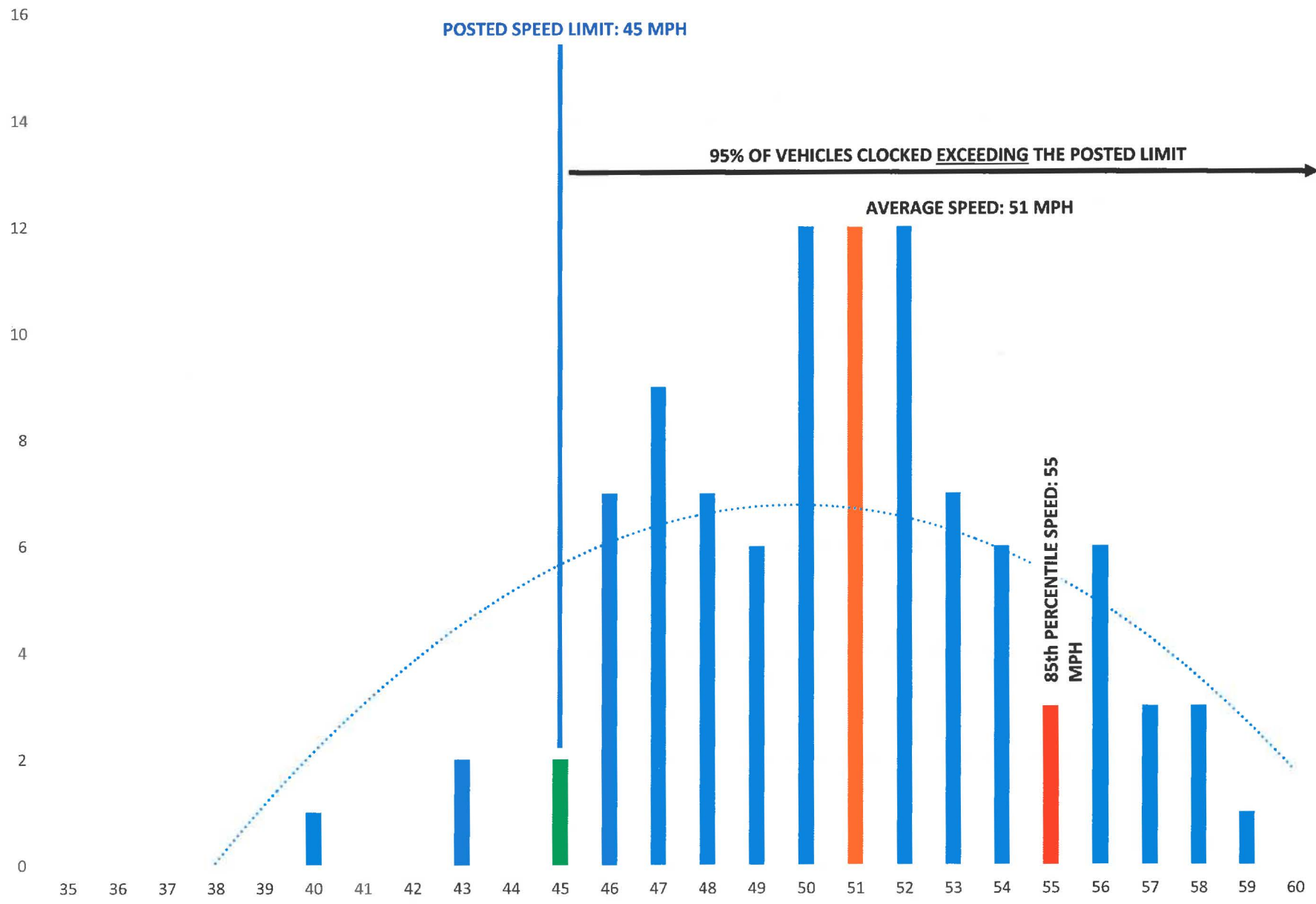
Checked By: JJ 12/27/2018

# EXHIBIT 2

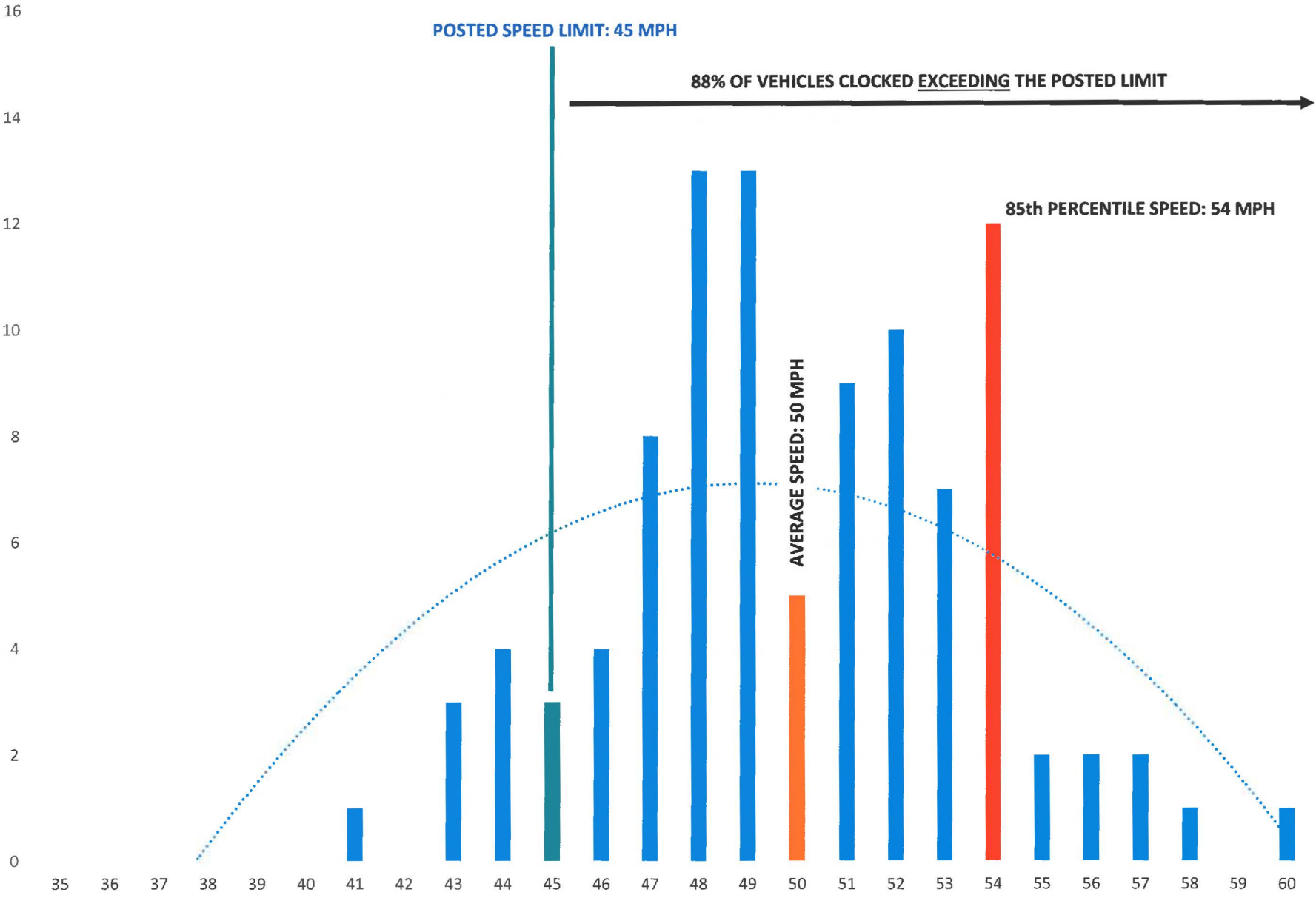
2018 SPEED STUDY DATA: US 278 BUSINESS, ZONE 1



# 2018 SPEED STUDY DATA: US 278 BUSINESS, ZONE 2



2018 SPEED STUDY DATA: US 278 BUSINESS, **ZONE 3**





### Radar Data Collection Sheet

**Road Name:** US 278 Business [Zone 1]

**Section Begin:** MP 0.00

**Section End:** MP 3

**Section Length:** 3 miles

**AADT:** 35,212

**No. of Through Lanes:** 2

**No. of Driveways:** 0

**No. of Signals:** 0

**Adverse Alignment:** YES / NO

**Transition Zone:** YES / NO

**Roadside Rating:** 1 2 3 4 5 6 7

**Median Presence:** DIV / UNDIV / TWLTL

**Statutory Speed Limit:** 30 / 55 / other \_40\_

**On-street Parking:** HIGH / NOT HIGH

**Ped/ Bike Activity:** HIGH / NOT HIGH

**One-Way Street:** YES / NO

Data Point #	Speed (MPH)	Data Point #	Speed (MPH)	Data Point #	Speed (MPH)	Data Point #	Speed (MPH)
1	46	26	47	51	47	76	49
2	51	27	47	52	50	77	50
3	54	28	47	53	48	78	45
4	44	29	51	54	45	79	48
5	46	30	54	55	47	80	40
6	45	31	46	56	51	81	49
7	46	32	52	57	46	82	47
8	51	33	44	58	47	83	43
9	41	34	47	59	45	84	40
10	43	35	46	60	46	85	43
11	47	36	44	61	47	86	42
12	57	37	45	62	50	87	45
13	41	38	51	63	46	88	52
14	42	39	50	64	50	89	51
15	40	40	47	65	49	90	49
16	44	41	44	66	47	91	49
17	41	42	49	67	44	92	44
18	42	43	47	68	50	93	41
19	50	44	53	69	49	94	52
20	49	45	44	70	48	95	50
21	50	46	48	71	48	96	53
22	46	47	49	72	47	97	53
23	51	48	43	73	49	98	44
24	45	49	43	74	49	99	48
25	49	50	47	75	48	100	44

47.1

**50th Percentile Speed:** 47  
**85th Percentile Speed:** 51  
**Low Speed:** 40  
**High Speed:** 57

14

18

22

14

68

% Exceeding 0.68

**ZONE 1**

<b>Data Point #</b>	<b>Speed (MPH)</b>
1	46
2	51
3	54
4	44
5	46
6	45
7	46
8	51
9	41
10	43
11	47
12	57
13	41
14	42
15	40
16	44
17	41
18	42
19	50
20	49
21	50
22	46
23	51
24	45
25	49
26	47
27	47
28	47
29	51
30	54
31	46
32	52
33	44
34	47
35	46
36	44
37	45
38	51
39	50
40	47
41	44
42	49
43	47
44	53

**ZONE 1**

<b>Data Point #</b>	<b>Speed (MPH)</b>
45	44
46	48
47	49
48	43
49	43
50	47
51	47
52	50
53	48
54	45
55	47
56	51
57	46
58	47
59	45
60	46
61	47
62	50
63	46
64	50
65	49
66	47
67	44
68	50
69	49
70	48
71	48
72	47
73	49
74	49
75	48
76	49
77	50
78	45
79	48
80	40
81	49
82	47
83	43
84	40
85	43
86	42
87	45
88	52

**ZONE 1**

<b>Data Point #</b>	<b>Speed (MPH)</b>
89	51
90	49
91	49
92	44
93	41
94	52
95	50
96	53
97	53
98	44
99	48
100	44

<b>50th</b>	<b>47</b>
<b>85th</b>	<b>51</b>
<b>Low</b>	<b>40</b>
<b>High</b>	<b>57</b>

**31 of 100 <= 45 MPH**

**69 of 100 > 45 MPH**

## Zone 1 Input Help

**No. of Through Lanes:** The user is requested to input the total number of through traffic lanes in both directions of travel. On a one-way street, this is the number of through lanes in one direction.

**No. of Driveways:** This refers to the number of driveways and unsignalized access points in the section. Access points on both sides of the road should be included in this count. This information is used to calculate the number of driveways per mile in the section (number of driveways divided by section length).

**No. of Signals:** This refers to the number of signalized intersections in the section. Traffic signals are defined as stop and go signals. Flashing beacons and warning beacons should not be included in this count. This information is used to calculate the number of signals per mile (number of signals divided by section length).

**Adverse Alignment:** Adverse alignment of the road includes road features with vertical and/or horizontal alignments which differ significantly from the alignment of the general road. Adverse alignment segments typically have poor sight distance, reverse curves, and other features such as narrow pavement widths and shoulders that reduce operating speeds below the general speed limit for the section. When adverse alignment is present in a study section, a warning will be provided along with the general recommended speed limit for the section. Sections with adverse alignment typically require posting advisory speed warnings which are lower than the general speed limit for the section.

**Transition Zone:** For projects on limited access freeways, users are asked to indicate if this section is transitioning to a non-limited access road. For projects with road sections in undeveloped areas, users are asked if the section is transitioning to a road section in a developed area. The answers are mainly used to determine if the operating speed is too low for a particular roadway type – lower operating speeds are typically used in transition zones.

**Roadside Rating:** The roadside hazard rating is a measure of roadside conditions including: shoulder width and type, side-slope, clear zone distance, and presence/absence of fixed objects on the roadside. The scale ranges from 1 to 7, with 1 representing the lowest hazard (best conditions), and 7 representing the highest hazard (worst conditions).

Rating = 1

Wide clear zones free from obstacles greater than or equal to 9 m (30 ft) from the pavement edgeline.

Sideslope flatter than 1:4.

Recoverable in a run-off-road situation.

Rating = 2

## Zone 1 Input Help

Clear zone free from obstacles between 6 and 7.5 m (20 and 25 ft) from pavement edgeline.  
Sideslope about 1:4.  
Recoverable in a run-off-road situation.

Rating = 3

Clear zone free from obstacles about 3 m (10 ft) from pavement edgeline.  
Sideslope about 1:3 or 1:4.  
Rough roadside surface.  
Marginally recoverable in a run-off-road situation.

Rating = 4

Clear zone free from obstacles between 1.5 and 3 m (5 to 10 ft) from pavement edgeline.  
Sideslope about 1:3 or 1:4.  
May have guardrail (1.5 to 2 m [5 to 6.5 ft] from pavement edgeline).  
May have exposed trees, poles, or other objects (about 3 m or 10 ft from pavement edgeline).

Marginally forgiving in a run-off-road situation, but increased chance of a reportable roadside collision.

Rating = 5

Clear zone free from obstacles between 1.5 and 3 m (5 to 10 ft) from pavement edgeline.  
Sideslope about 1:3.  
May have guardrail (0 to 1.5 m [0 to 5 ft] from pavement edgeline).  
May have rigid obstacles or embankment within 2 to 3 m (6.5 to 10 ft) of pavement edgeline.  
Virtually non-recoverable in a run-off-road situation.

Rating = 6

Clear zone free from obstacles less than or equal to 1.5 m (5 ft).  
Sideslope about 1:2.  
No guardrail.  
Exposed rigid obstacles within 0 to 2 m (0 to 6.5 ft) of the pavement edgeline.  
Non-recoverable in a run-off-road situation.

## Zone 1 Input Help

Rating = 7

Clear zone free from obstacles less than or equal to 1.5 m (5 ft).

Sideslope 1:2 or steeper.

Cliff or vertical rock cut.

No guardrail.

Non-recoverable in a run-off-road situation with a high likelihood of severe injuries from roadside collision.

**Statutory Speed Limit:** 30 mph for residential, 55 mph for rural section unless otherwise noted.

### **On-street Parking:**

Users are asked to select between 'High' and 'Not High'. 'High' parking activity and usage typically occur in downtown and/or CBD areas. These areas usually have parking on both sides of the road with parking time limits that do not exceed 60 minutes, with at least 30 percent of parking spaces occupied during weekdays.

**Ped/ Bike Activity:** Users are asked to select between 'High' and 'Not High'. Examples of areas with 'High' pedestrian and bicycle activity include:

- (1) Residential developments with four or more housing units per acre interspersed with multifamily dwellings,
- (2) Hotels located with 1/2 mile of other attractions such as retail stores, recreation areas, or senior centers,
- (3) Downtown or CBD areas, and
- (4) the presence of paved sidewalks, marked crosswalks, and pedestrian signals.

**One-Way Street:** Only for Road Section in Developed Area.

Road Name: US 278 Business [Zone 2]

Section Begin: MP 3

Section End: MP 6

Section Length: 3 miles

AADT: 35,212

No. of Through Lanes: 2

No. of Driveways: 0

No. of Signals: 0

Adverse Alignment: YES / NO

Transition Zone: YES / NO

Roadside Rating: 1 2 3 4 5 6 7

Median Presence: DIV / UNDIV / TWLTL

Statutory Speed Limit: 30 / 55 / other \_40\_

On-street Parking: HIGH / NOT HIGH

Ped/ Bike Activity: HIGH / NOT HIGH

One-Way Street: YES / NO

Data Point #	Speed (MPH)	Data Point #	Speed (MPH)	Data Point #	Speed (MPH)	Data Point #	Speed (MPH)
1	48	26	54	51	52	76	58
2	53	27	46	52	47	77	52
3	53	28	51	53	56	78	51
4	56	29	50	54	52	79	54
5	45	30	49	55	57	80	78
6	48	31	55	56	54	81	47
7	51	32	48	57	52	82	51
8	47	33	46	58	50	83	56
9	55	34	53	59	48	84	52
10	46	35	40	60	52	85	47
11	52	36	49	61	56	86	53
12	51	37	51	62	46	87	50
13	52	38	47	63	53	88	51
14	54	39	58	64	53	89	48
15	43	40	47	65	48	90	50
16	52	41	50	66	50	91	48
17	47	42	54	67	59	92	50
18	57	43	46	68	52	93	52
19	46	44	49	69	50	94	51
20	50	45	47	70	55	95	49
21	45	46	53	71	50	96	51
22	50	47	46	72	49	97	54
23	50	48	51	73	56	98	52
24	47	49	49	74	51	99	51
25	43	50	58	75	56	100	57

51.05

50th Percentile Speed: 51  
85th Percentile Speed: 55  
Low Speed: 40  
High Speed: 78

21

24

25

25

95

% Exceeding

0.95



**ZONE 2**

<b>Data Point #</b>	<b>Speed (MPH)</b>
1	48
2	53
3	53
4	56
5	45
6	48
7	51
8	47
9	55
10	46
11	52
12	51
13	52
14	54
15	43
16	52
17	47
18	57
19	46
20	50
21	45
22	50
23	50
24	47
25	43
26	54
27	46
28	51
29	50
30	49
31	55
32	48
33	46
34	53
35	40
36	49
37	51
38	47
39	58
40	47
41	50
42	54
43	46
44	49

**ZONE 2**

<b>Data Point #</b>	<b>Speed (MPH)</b>
45	47
46	53
47	46
48	51
49	49
50	58
51	52
52	47
53	56
54	52
55	57
56	54
57	52
58	50
59	48
60	52
61	56
62	46
63	53
64	53
65	48
66	50
67	59
68	52
69	50
70	55
71	50
72	49
73	56
74	51
75	56
76	58
77	52
78	51
79	54
80	78
81	47
82	51
83	56
84	52
85	47
86	53
87	50
88	51

**ZONE 2**

<b>Data Point #</b>	<b>Speed (MPH)</b>
89	48
90	50
91	48
92	50
93	52
94	51
95	49
96	51
97	54
98	52
99	51
100	57

<b>50th</b>	<b>51</b>
<b>85th</b>	<b>55</b>
<b>Low</b>	<b>40</b>
<b>High</b>	<b>78</b>

**5 of 100 <= 45 MPH**

**95 of 100 > 45 MPH**

## Zone 2 Input Help

**No. of Through Lanes:** The user is requested to input the total number of through traffic lanes in both directions of travel. On a one-way street, this is the number of through lanes in one direction.

**No. of Driveways:** This refers to the number of driveways and unsignalized access points in the section. Access points on both sides of the road should be included in this count. This information is used to calculate the number of driveways per mile in the section (number of driveways divided by section length).

**No. of Signals:** This refers to the number of signalized intersections in the section. Traffic signals are defined as stop and go signals. Flashing beacons and warning beacons should not be included in this count. This information is used to calculate the number of signals per mile (number of signals divided by section length).

**Adverse Alignment:** Adverse alignment of the road includes road features with vertical and/or horizontal alignments which differ significantly from the alignment of the general road. Adverse alignment segments typically have poor sight distance, reverse curves, and other features such as narrow pavement widths and shoulders that reduce operating speeds below the general speed limit for the section. When adverse alignment is present in a study section, a warning will be provided along with the general recommended speed limit for the section. Sections with adverse alignment typically require posting advisory speed warnings which are lower than the general speed limit for the section.

**Transition Zone:** For projects on limited access freeways, users are asked to indicate if this section is transitioning to a non-limited access road. For projects with road sections in undeveloped areas, users are asked if the section is transitioning to a road section in a developed area. The answers are mainly used to determine if the operating speed is too low for a particular roadway type – lower operating speeds are typically used in transition zones.

**Roadside Rating:** The roadside hazard rating is a measure of roadside conditions including: shoulder width and type, side-slope, clear zone distance, and presence/absence of fixed objects on the roadside. The scale ranges from 1 to 7, with 1 representing the lowest hazard (best conditions), and 7 representing the highest hazard (worst conditions).

## Zone 2 Input Help

### Rating = 1

Wide clear zones free from obstacles greater than or equal to 9 m (30 ft) from the pavement edgeline.

Sideslope flatter than 1:4.

Recoverable in a run-off-road situation.

### Rating = 2

Clear zone free from obstacles between 6 and 7.5 m (20 and 25 ft) from pavement edgeline.

Sideslope about 1:4.

Recoverable in a run-off-road situation.

### Rating = 3

Clear zone free from obstacles about 3 m (10 ft) from pavement edgeline.

Sideslope about 1:3 or 1:4.

Rough roadside surface.

Marginally recoverable in a run-off-road situation.

### Rating = 4

Clear zone free from obstacles between 1.5 and 3 m (5 to 10 ft) from pavement edgeline.

Sideslope about 1:3 or 1:4.

May have guardrail (1.5 to 2 m [5 to 6.5 ft] from pavement edgeline).

May have exposed trees, poles, or other objects (about 3 m or 10 ft from pavement edgeline).

Marginally forgiving in a run-off-road situation, but increased chance of a reportable roadside collision.

### Rating = 5

Clear zone free from obstacles between 1.5 and 3 m (5 to 10 ft) from pavement edgeline.

Sideslope about 1:3.

May have guardrail (0 to 1.5 m [0 to 5 ft] from pavement edgeline).

May have rigid obstacles or embankment within 2 to 3 m (6.5 to 10 ft) of pavement edgeline.

Virtually non-recoverable in a run-off-road situation.

### Rating = 6

Clear zone free from obstacles less than or equal to 1.5 m (5 ft).

Sideslope about 1:2.

No guardrail.

Exposed rigid obstacles within 0 to 2 m (0 to 6.5 ft) of the pavement edgeline.

Non-recoverable in a run-off-road situation.

## Zone 2 Input Help

Rating = 7

Clear zone free from obstacles less than or equal to 1.5 m (5 ft).

Sideslope 1:2 or steeper.

Cliff or vertical rock cut.

No guardrail.

Non-recoverable in a run-off-road situation with a high likelihood of severe injuries from roadside collision.

**Statutory Speed Limit:** 30 mph for residential, 55 mph for rural section unless otherwise noted.

**On-street Parking:** Users are asked to select between 'High' and 'Not High'. 'High' parking activity and usage typically occur in downtown and/or CBD areas. These areas usually have parking on both sides of the road with parking time limits that do not exceed 60 minutes, with at least 30 percent of parking spaces occupied during weekdays.

**Ped/ Bike Activity:** Users are asked to select between 'High' and 'Not High'. Examples of areas with 'High' pedestrian and bicycle activity include:

(1) Residential developments with four or more housing units per acre interspersed with multifamily dwellings,

(2) Hotels located with 1/2 mile of other attractions such as retail stores, recreation areas, or senior centers,

(3) Downtown or CBD areas, and

(4) the presence of paved sidewalks, marked crosswalks, and pedestrian signals.

**One-Way Street:** Only for Road Section in Developed Area.

### Radar Data Collection Sheet

**Road Name:** US 278 Business [Zone 3]

**Section Begin:** MP 6

**Section End:** MP 8.79

**Section Length:** 3 miles

**AADT:** 35,212

**No. of Through Lanes:** 2

**No. of Driveways:** 0

**No. of Signals:** 0

**Adverse Alignment:** YES / NO

**Transition Zone:** YES / NO

**Roadside Rating:** 1 2 3 4 5 6 7

**Median Presence:** DIV / UNDIV / TWLTL

**Statutory Speed Limit:** 30 / 55 / other \_40\_

**On-street Parking:** HIGH / NOT HIGH

**Ped/ Bike Activity:** HIGH / NOT HIGH

**One-Way Street:** YES / NO

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6	51	31	53	56	54	81	48
7	48	32	44	57	51	82	51
8	52	33	50	58	47	83	48
9	53	34	56	59	57	84	53
10	49	35	54	60	52	85	48
11	47	36	52	61	53	86	48
12	54	37	49	62	46	87	60
13	45	38	48	63	44	88	57
14	49	39	43	64	48	89	49
15	52	40	54	65	52	90	52
16	49	41	46	66	49	91	54
17	51	42	52	67	54	92	51
18	50	43	48	68	48	93	50
19	49	44	49	69	58	94	49
20	43	45	45	70	49	95	54
21	53	46	46	71	54	96	47
22	41	47	54	72	44	97	54
23	48	48	52	73	53	98	48
24	49	49	54	74	51	99	51
25	50	50	48	75	46	100	45

50.04

**50th Percentile Speed:** 50

**85th Percentile Speed:** 54

**Low Speed:** 41

**High Speed:** 60

22

22

22

23

89

% Exceeding

0.89

**ZONE 3**

<b>Data Point #</b>	<b>Speed (MPH)</b>
1	47
2	47
3	51
4	47
5	52
6	51
7	48
8	52
9	53
10	49
11	47
12	54
13	45
14	49
15	52
16	49
17	51
18	50
19	49
20	43
21	53
22	41
23	48
24	49
25	50
26	48
27	51
28	54
29	56
30	53
31	53
32	44
33	50
34	56
35	54
36	52
37	49
38	48
39	43
40	54
41	46
42	52
43	48
44	49



**ZONE 3**

<b>Data Point #</b>	<b>Speed (MPH)</b>
45	45
46	46
47	54
48	52
49	54
50	48
51	50
52	55
53	49
54	47
55	43
56	54
57	51
58	47
59	57
60	52
61	53
62	46
63	44
64	48
65	52
66	49
67	54
68	48
69	58
70	49
71	54
72	44
73	53
74	51
75	46
76	52
77	55
78	44
79	49
80	47
81	48
82	51
83	48
84	53
85	48
86	48
87	60
88	57

**ZONE 3**

<b>Data Point #</b>	<b>Speed (MPH)</b>
89	49
90	52
91	54
92	51
93	50
94	49
95	54
96	47
97	54
98	48
99	51
100	45

<b>50th</b>	<b>50</b>
<b>85th</b>	<b>54</b>
<b>Low</b>	<b>41</b>
<b>High</b>	<b>60</b>

**11 of 100 <= 45 MPH**

**89 of 100 > 45 MPH**

## Zone 3 Input Help

- No. of Through Lanes:** The user is requested to input the total number of through traffic lanes in both directions of travel. On a one-way street, this is the number of through lanes in one direction.
- No. of Driveways:** This refers to the number of driveways and unsignalized access points in the section. Access points on both sides of the road should be included in this count. This information is used to calculate the number of driveways per mile in the section (number of driveways divided by section length).
- No. of Signals:** This refers to the number of signalized intersections in the section. Traffic signals are defined as stop and go signals. Flashing beacons and warning beacons should not be included in this count. This information is used to calculate the number of signals per mile (number of signals divided by section length).
- Adverse Alignment:** Adverse alignment of the road includes road features with vertical and/or horizontal alignments which differ significantly from the alignment of the general road. Adverse alignment segments typically have poor sight distance, reverse curves, and other features such as narrow pavement widths and shoulders that reduce operating speeds below the general speed limit for the section. When adverse alignment is present in a study section, a warning will be provided along with the general recommended speed limit for the section. Sections with adverse alignment typically require posting advisory speed warnings which are lower than the general speed limit for the section.
- Transition Zone:** For projects on limited access freeways, users are asked to indicate if this section is transitioning to a non-limited access road. For projects with road sections in undeveloped areas, users are asked if the section is transitioning to a road section in a developed area. The answers are mainly used to determine if the operating speed is too low for a particular roadway type – lower operating speeds are typically used in transition zones.
- Roadside Rating:** The roadside hazard rating is a measure of roadside conditions including: shoulder width and type, side-slope, clear zone distance, and presence/absence of fixed objects on the roadside. The scale ranges from 1 to 7, with 1 representing the lowest hazard (best conditions), and 7 representing the highest hazard (worst conditions).

## Zone 3 Input Help

Rating = 1

Wide clear zones free from obstacles greater than or equal to 9 m (30 ft) from the pavement edgeline.  
Sideslope flatter than 1:4.  
Recoverable in a run-off-road situation.

Rating = 2

Clear zone free from obstacles between 6 and 7.5 m (20 and 25 ft) from pavement edgeline.  
Sideslope about 1:4.  
Recoverable in a run-off-road situation.

Rating = 3

Clear zone free from obstacles about 3 m (10 ft) from pavement edgeline.  
Sideslope about 1:3 or 1:4.  
Rough roadside surface.  
Marginally recoverable in a run-off-road situation.

Rating = 4

Clear zone free from obstacles between 1.5 and 3 m (5 to 10 ft) from pavement edgeline.  
Sideslope about 1:3 or 1:4.  
May have guardrail (1.5 to 2 m [5 to 6.5 ft] from pavement edgeline).  
May have exposed trees, poles, or other objects (about 3 m or 10 ft from pavement edgeline).  
Marginally forgiving in a run-off-road situation, but increased chance of a reportable roadside collision.

Rating = 5

Clear zone free from obstacles between 1.5 and 3 m (5 to 10 ft) from pavement edgeline.  
Sideslope about 1:3.  
May have guardrail (0 to 1.5 m [0 to 5 ft] from pavement edgeline).  
May have rigid obstacles or embankment within 2 to 3 m (6.5 to 10 ft) of pavement edgeline.  
Virtually non-recoverable in a run-off-road situation.

Rating = 6

Clear zone free from obstacles less than or equal to 1.5 m (5 ft).  
Sideslope about 1:2.  
No guardrail.  
Exposed rigid obstacles within 0 to 2 m (0 to 6.5 ft) of the pavement edgeline.  
Non-recoverable in a run-off-road situation.

## Zone 3 Input Help

Rating = 7

Clear zone free from obstacles less than or equal to 1.5 m (5 ft).

Sideslope 1:2 or steeper.

Cliff or vertical rock cut.

No guardrail.

Non-recoverable in a run-off-road situation with a high likelihood of severe injuries from roadside collision.

**Statutory Speed Limit:** 30 mph for residential, 55 mph for rural section unless otherwise noted.

**On-street Parking:** Users are asked to select between 'High' and 'Not High'. 'High' parking activity and usage typically occur in downtown and/or CBD areas. These areas usually have parking on both sides of the road with parking time limits that do not exceed 60 minutes, with at least 30 percent of parking spaces occupied during weekdays.

**Ped/ Bike Activity:** Users are asked to select between 'High' and 'Not High'. Examples of areas with 'High' pedestrian and bicycle activity include:

(1) Residential developments with four or more housing units per acre interspersed with multifamily dwellings,

(2) Hotels located with 1/2 mile of other attractions such as retail stores, recreation areas, or senior centers,

(3) Downtown or CBD areas, and

(4) the presence of paved sidewalks, marked crosswalks, and pedestrian signals.

**One-Way Street:** Only for Road Section in Developed Area.