



# SPEED ZONE SURVEY

## GREENSTONE ROAD

(No. 7)

FROM MILEPOST 0.16 NORTHERLY TO US HIGHWAY 50 EASTBOUND ON/OFF  
RAMPS (SPEED ZONE LENGTH AMENDMENT)

Reviewed by the Traffic Advisory Committee on MAY 19 2021

*COMMITTEE APPROVED STAFF'S RECOMMENDATION.*

*COMMITTEE REQUESTED FURTHER ACTION.*

Action APPROVED

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## DEPARTMENT OF TRANSPORTATION

### ENGINEERING AND TRAFFIC SURVEY

**Location:** Greenstone Road (No. 7) from Milepost 0.16 Northerly to the US Highway 50 Eastbound On/Off Ramps

**Subject:** Speed Zone Survey Update

**Date:** March 18, 2021

## 2021 ENGINEERING AND TRAFFIC SURVEY FOR SPEED LIMITS

### 1. INTRODUCTION

The California Vehicle Code, Section 22358, allows local authorities to establish speed limits based on an “Engineering and Traffic Survey”. The Vehicle Code goes on, in Section 40801 to prohibit the use of “speed traps” for the purpose of speed enforcement and, in Section 40802, defines “speed trap”. Section 40802 also indicates that an “Engineering and Traffic Survey” is required where speed enforcement involves the use of radar and establishes the frequency with which surveys must be conducted for continued radar enforcement. In order to comply with the provisions of the Vehicle Code, and insure that radar enforced speed zones are based on recent data, the County of El Dorado has established a practice of conducting engineering and traffic survey updates based on a cycle length of five (5) years or less.

In Section 627, the Vehicle Code provides a definition for “Engineering and Traffic Survey”, and states that an “Engineering and Traffic Survey” shall include:

1. Prevailing speeds as determined by traffic engineering measurements.
2. Accident records.
3. Highway, traffic, and roadside conditions not readily apparent to the driver.

In addition, the 2001 edition of the Vehicle Code added that residential density, pedestrian, and bicycle safety may be considered.

While the California Vehicle Code is silent regarding the relationship of the 85th percentile speed to the posted speed, the California Manual on Uniform Traffic Control Devices (CAMUTCD), Section 2B.13, “Speed Limit Sign”, “Engineering and Traffic Survey”, states in part:

“When a speed limit is to be posted, it shall be established at the nearest 5 mph increment of the 85th percentile speed of free-flowing traffic . . . [except] the posted speed may be reduced by 5 mph from the nearest 5 mph increment of the 85th percentile speed . . .”

Section 2B.13 further states in part:

“If the speed limit to be posted has had the 5 mph reduction applied, then an E&TS shall document in writing the conditions and justification for the lower speed limit and be approved by a registered Civil or Traffic Engineer. The reasons for the lower speed limit shall be in compliance with CVC Sections 627 and 22358.5.

All “Engineering and Traffic Surveys“ performed by the El Dorado County Department of Transportation for establishing speed limits, stop controlled intersections, crosswalks, painted traffic curbs, regulatory traffic signage, and other traffic control devices, use the current publications of the California Vehicle Code, CAMUTCD, California Manual for Setting Speed Limits, applicable County Ordinance Code, and other Civil Engineering publications and California Codes pertaining to the establishment and placement of traffic control devices.

**2. NO CHANGES TO EXISTING SPEED LIMIT ON GREENSTONE ROAD (NO 7) FROM 750 FEET SOUTH OF DAVIDSON ROAD NORTHERLY TO THE US HIGHWAY 50 EB ON/OFF RAMPS.**

The existing speed limit on Greenstone Road, Milepost 0.69 – 1.42, is sanctioned by the following Resolution:

**Resolution No. 150-2016**

- “(gg) Greenstone Road (No. 7) forty-five (45) miles per hour from 750 feet south of Davidson Road northerly to the US Hwy 50 EB On/Off Ramps.”

Data indicates that the existing speed zone on Greenstone Road is recommended for no change in posted speed limit. The reason centers on the fact that newly measured values of the 85<sup>th</sup> percentile and the 10 mph pace are still within the parameters of the existing speed limit. Hence, the current postings should remain as is.

**Segment 1 Greenstone Road (No. 7) From 750 feet south of Davidson Road northerly to the US Hwy 50 EB On/Off ramps (Segment Length 0.73 mi.) (MP 0.69-1.42)**

This segment of Greenstone Road is a two lane, Collector Road, which is 0.73 miles in length and serves an average of 1,444 vehicles per day. There have been six (6) reported collisions with four (4) injuries and zero (0) fatalities in the past three years, resulting in a collision rate of 5.20 Collisions per Million Vehicle Miles. Collisions have gone down since the last Engineering and Traffic Survey in 2015/2016, possibly due to the COVID Pandemic and/or Greenstone Road bridge construction closures. Greenstone Road provides access to one (1) County maintained road and many private roads and driveways. It functions as a connector between US Highway 50 and Motherlode Drive. The adjoining terrain is mostly rolling and consists of small ranches, farms and residential areas.

- 85th percentile speeds of forty eight (48), forty seven (47) and forty seven (47) miles per hour were recorded. (average forty seven (47))

- The calculated average daily traffic volume was 1,444 vehicles per day.
- There has been no appreciable change to the configuration or physical alignment of this segment during the past five (5) years.
- Roadway is curvilinear with level to moderate grades.
- There is one (1) intersecting County maintained road.
- This segment of Greenstone Road provides access to US Highway 50, Mother Lode Drive, ranches, farms and residential areas.
- There were six (6) collisions reported on this segment of Greenstone Road for the three (3) year period from January 1, 2018, through December 31, 2020 with a collision rate of 5.20 Collisions per Million Vehicle Miles. This collision rate is much higher than the countywide benchmark of 1.70 collisions per Million Vehicle Miles. However, extremely low traffic counts, such as this case, can produce a disproportionately higher collision rate due to a statistically low sample.
- Staff observed zero (0) bicyclists, and zero (0) pedestrians utilizing Greenstone Road during the field review that lasted approximately five (5) hours.
- The existing 85th percentile speeds of forty eight (48), forty seven (47) and forty seven (47) miles per hour, justifies, in accordance with the CAMUTCD, a radar enforced forty five (45) miles per hour speed zone.

<i>2020 SITE LOCATIONS</i>	<i>MILE POST</i>	<i>EXISTING SPEED LIMIT</i>	<i>85% SPEED</i>	<i>10 MPH PACE</i>	<i>% IN PACE SPEED</i>
<i>750 feet South of Davidson Road</i>	<i>0.69</i>	<i>45 mph</i>	<i>47 mph</i>	<i>36-45 mph</i>	<i>75.5%</i>
<i>500 feet North of Davidson Road</i>	<i>0.90</i>	<i>45 mph</i>	<i>47 mph</i>	<i>39-48 mph</i>	<i>78.8%</i>
<i>At Studebaker Rd (N)</i>	<i>1.27</i>	<i>45 mph</i>	<i>48 mph</i>	<i>37-46 mph</i>	<i>71.2%</i>

**Segment 2 (Proposed speed zone extension) Greenstone Road (No. 7) From 150 feet north of Greenstone Cutoff to 750 feet south of Davidson Road (Segment Length 0.53 mi.) (MP 0.16 - 0.69)**

In the fall of 2020 a Capital Improvement Project (CIP # 77137) to replace the bridge at Slate Creek and straighten out the curve adjoining the bridge was completed. This Segment of Greenstone Road is located just south of the existing Greenstone Road Speed Zone. As a result of this Capital Improvement Project and the change in the characteristics of this segment of Greenstone Road, the El Dorado County Department of Transportation is proposing to extend the existing speed zone 0.53 miles to the south. (MP 0.16-0.69)

This segment of Greenstone Road is a two lane, Collector Road, which is 0.53 miles in length and serves an average of 1,444 vehicles per day. There have been three (3) reported collisions with two (2) injuries and zero (0) fatalities in the past three years, resulting in a collision rate of 4.41 Collisions per Million Vehicle Miles. This segment of Greenstone Road provides access to zero (0) County maintained roads and many private roads and driveways. It functions as a connector between US Highway 50 and Motherlode Drive. The adjoining terrain is mostly rolling and consists of small ranches, farms, residential areas and a few commercial sites.

- 85th percentile speed of forty three (43) miles per hour was recorded.

- The calculated average daily traffic volume was 1,444 vehicles per day.
- A Capitol Improvement Project to replace the bridge at Slate Creek and straighten out the curve adjoining the bridge was completed in the fall of 2020.
- Roadway is curvilinear with level to moderate grades.
- There are zero (0) intersecting County maintained roads.
- This segment of Greenstone Road provides access to US Highway 50, Mother Lode Drive, ranches, farms, residential and commercial areas.
- There were three (3) collisions reported on this segment of Greenstone Road for the three (3) year period from January 1, 2018, through December 31, 2020 with a collision rate of 4.41 Collisions per Million Vehicle Miles. This collision rate is much higher than the countywide benchmark of 1.70 collisions per Million Vehicle Miles. However, extremely low traffic counts, such as this case, can produce a disproportionately higher collision rate due to a statistically low sample.
- Staff observed zero (0) bicyclists, and two (2) pedestrians utilizing this segment of Greenstone Road during the field review that lasted approximately two (2) hours.
- The existing 85th percentile speed of forty three (43) miles per hour, justifies, in accordance with the CAMUTCD, a radar enforced forty five (45) miles per hour speed zone.

<i>2020 SITE LOCATIONS</i>	<i>MILE POST</i>	<i>EXISTING SPEED LIMIT</i>	<i>85% SPEED</i>	<i>10 MPH PACE</i>	<i>% IN PACE SPEED</i>
<i>100 feet South of Quail Valley Road</i>	<i>0.30</i>	<i>55 mph</i>	<i>43 mph</i>	<i>34-43 mph</i>	<i>84.6%</i>

**RECOMMENDATION:**

Based on the findings of this survey it is recommended that the Traffic Advisory Committee approve the following.

1. The County of El Dorado Board of Supervisors be requested to amend:


**Resolution No. 150-2016**

- “(gg) Greenstone Road (No. 7) forty-five (45) miles per hour from 750 feet south of Davidson Road northerly to the US Hwy 50 EB On/Off Ramps.”

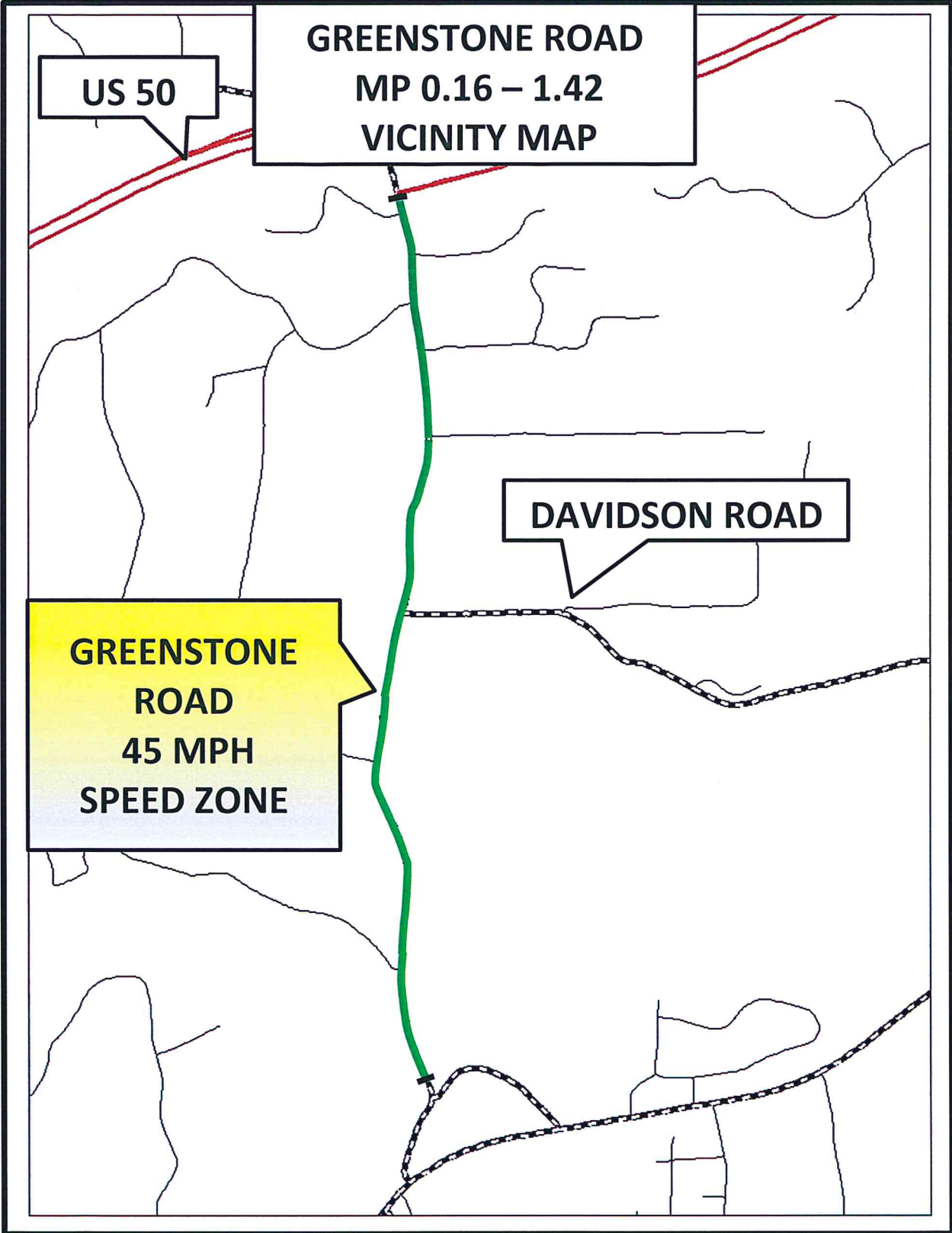
**With the following recommended wording**

- “(gg) Greenstone Road (No. 7) forty-five (45) miles per hour from 150 feet north of Greenstone Cutoff northerly to the US Hwy 50 EB On/Off Ramps.”
2. That the California Highway Patrol continues to utilize radar enforcement in this speed zone on Greenstone Road.

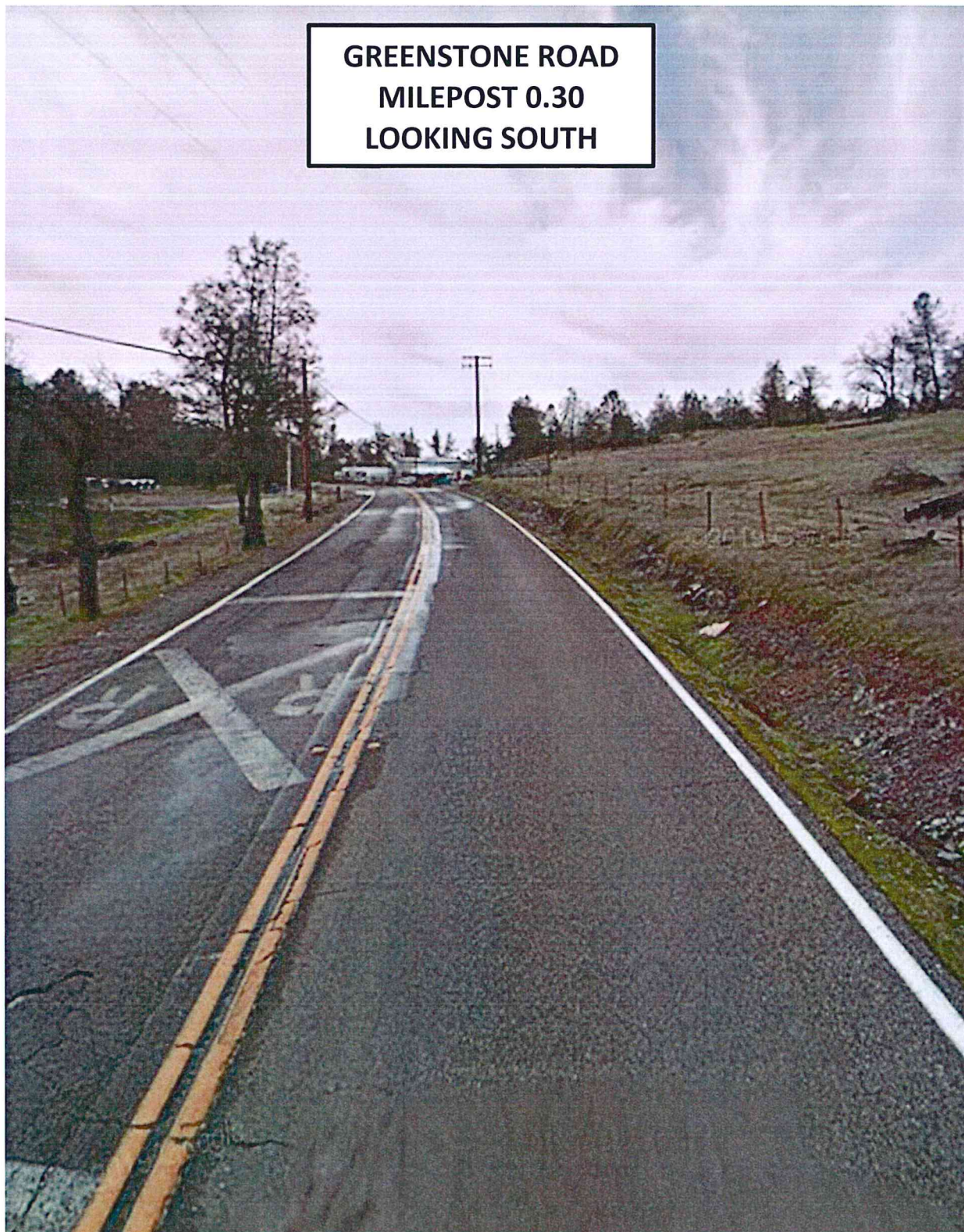
Prepared by:   
Michael Bastian  
Senior Engineering Technician

APPROVED BY:  on 4/14/21  
Rafael Martinez, T.E., Director  
Community Development Services  
Department of Transportation  
Date

- Attachments:
- Vicinity Map (1 page)
  - Photos (4 pages)
  - Speed Surveys (4 pages)



**GREENSTONE ROAD  
MILEPOST 0.30  
LOOKING SOUTH**

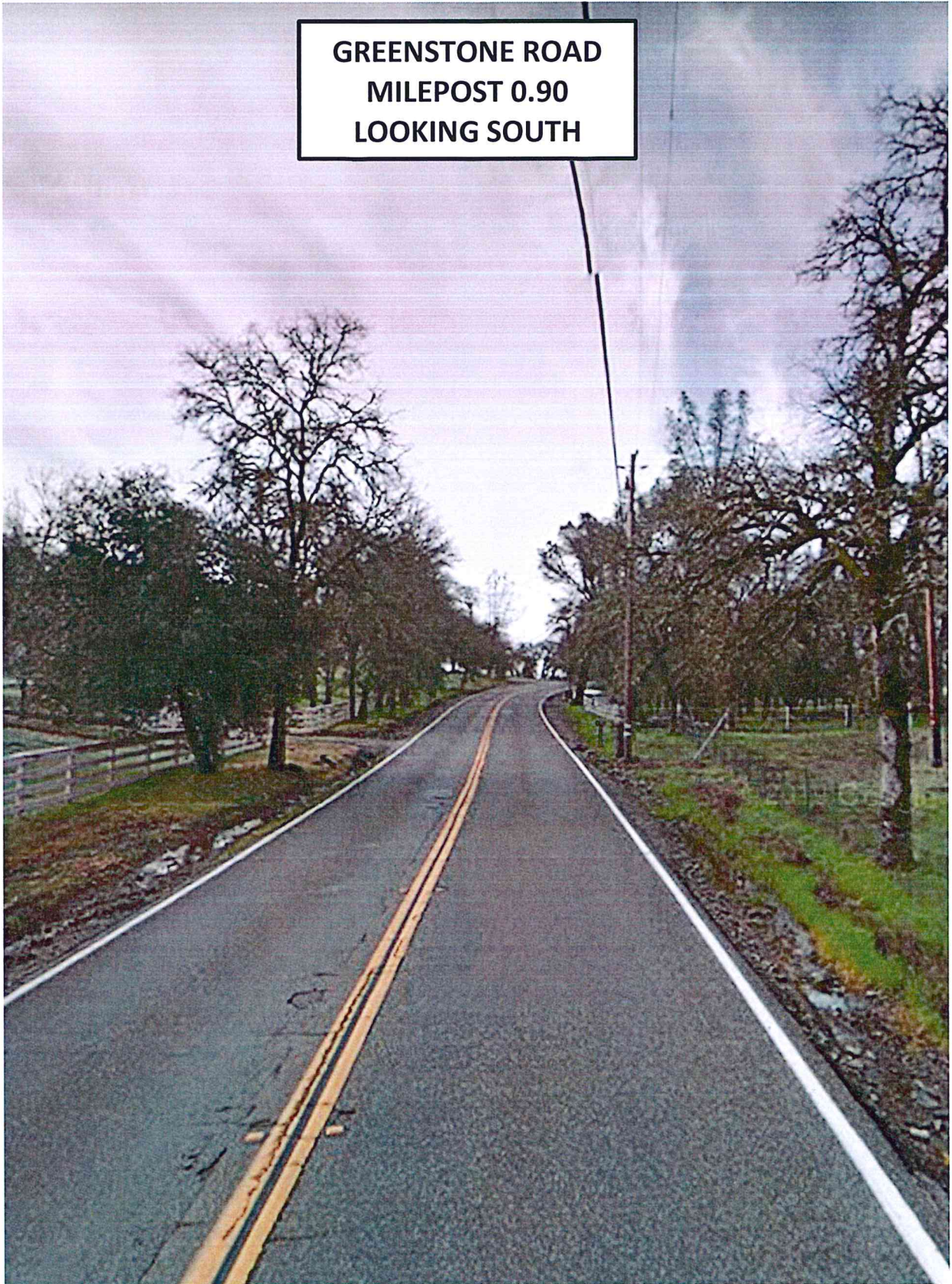




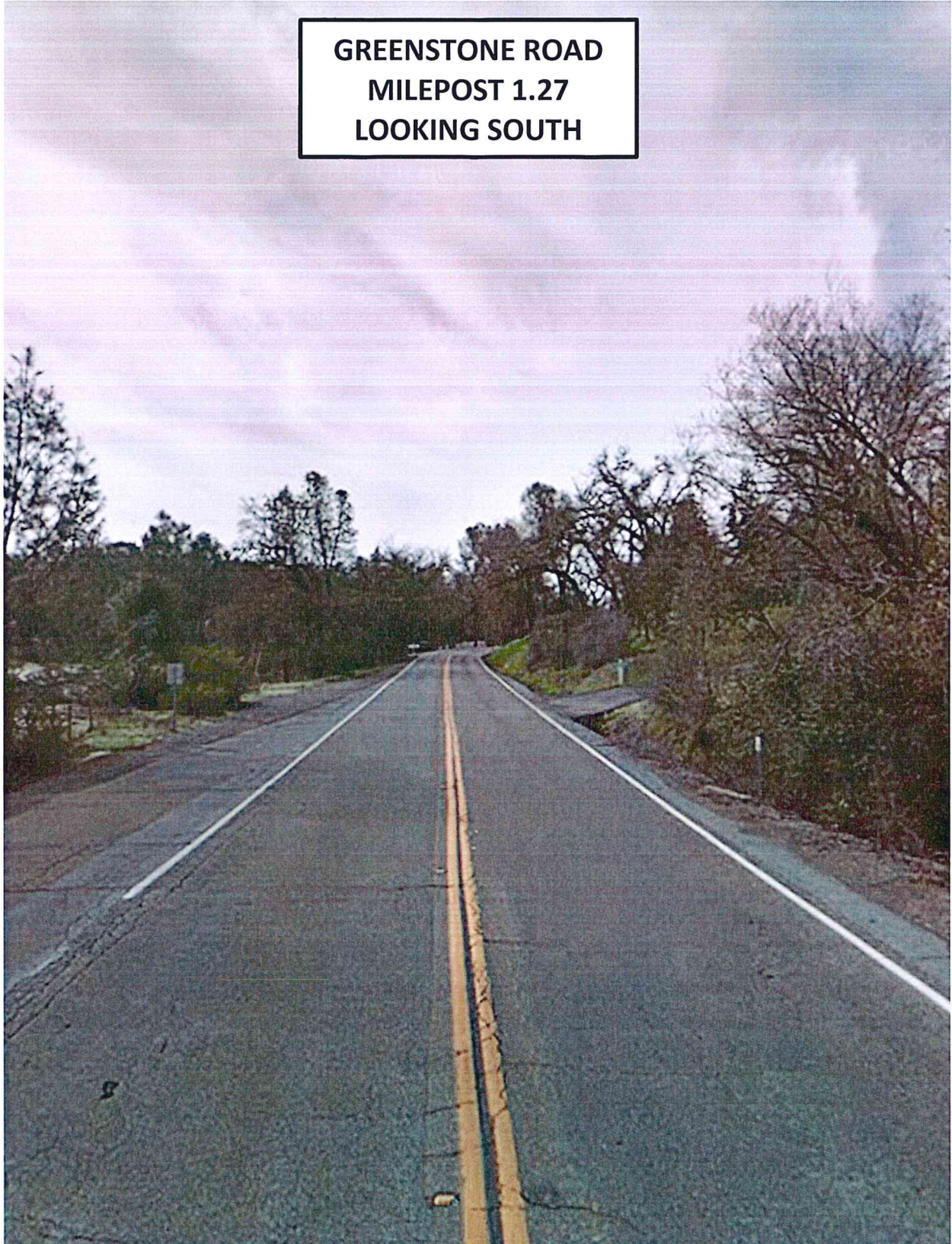
**GREENSTONE ROAD  
MILEPOST 0.69  
LOOKING SOUTH**



**GREENSTONE ROAD  
MILEPOST 0.90  
LOOKING SOUTH**



**GREENSTONE ROAD  
MILEPOST 1.27  
LOOKING SOUTH**



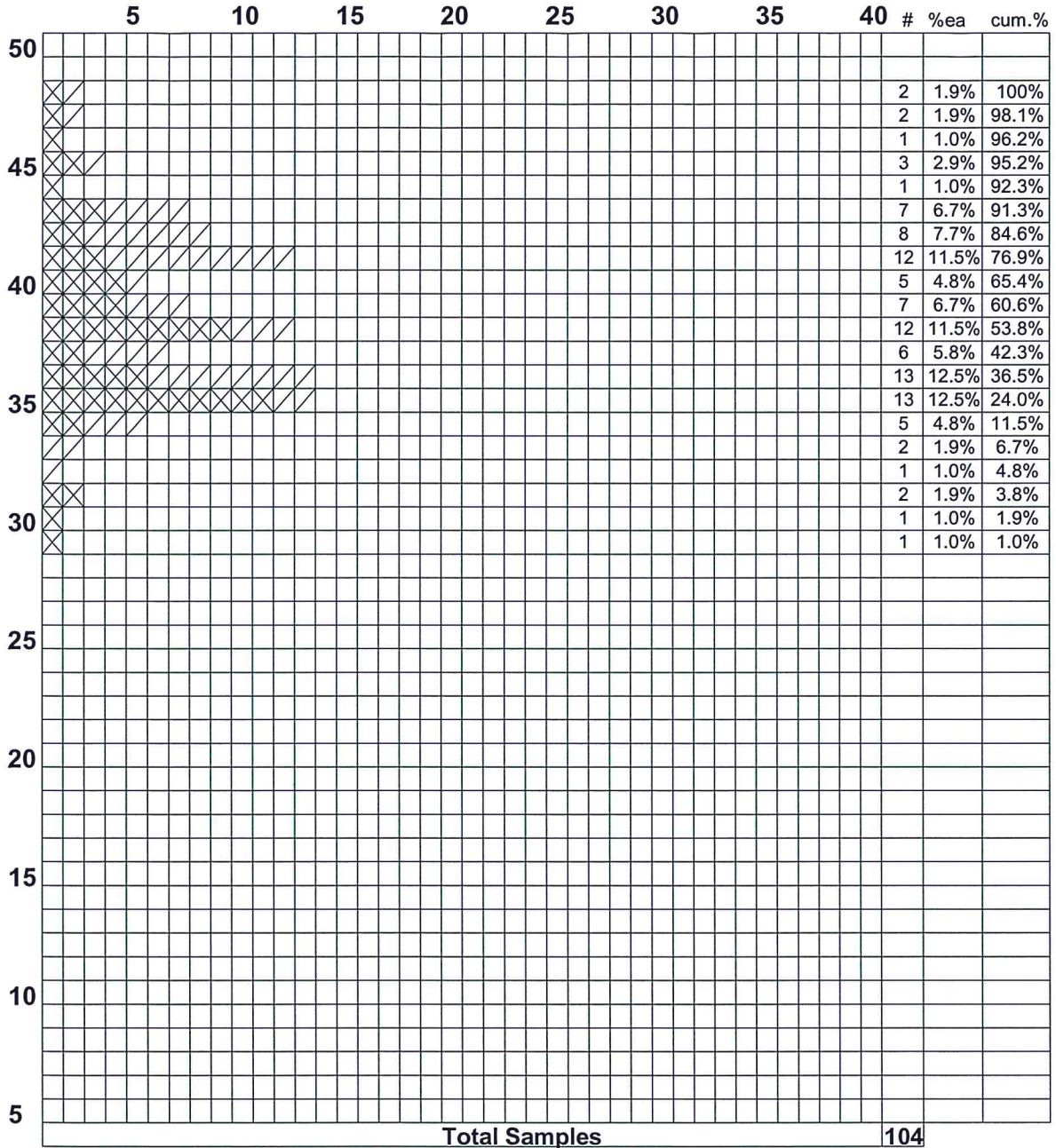
**County of El Dorado  
Transportation Division**

Street Name: GREENSTONE RD

Limits: GREENSTONE CUTOFF to QUAIL VALLEY RD

**Radar Survey Sheet**

X=North /-=South



85th Percentile Speed: 43  
 50th Percentile Speed: 38  
 15th Percentile Speed: 35  
 10 MPH Pace: 34- 43  
 Number in Pace: 88  
 Percent in Pace: 84.6%

Date of Survey: 1/21/2021      Start Time: 9:05  
 Weather: Clear      End Time: 10:45  
 Road Condition: Good      Posted Speed: 55  
 Street Class.:  
 Observer: M. BASTIAN  
 Conditions not      PEDS = 2, BIKES = 0  
 Apparent:

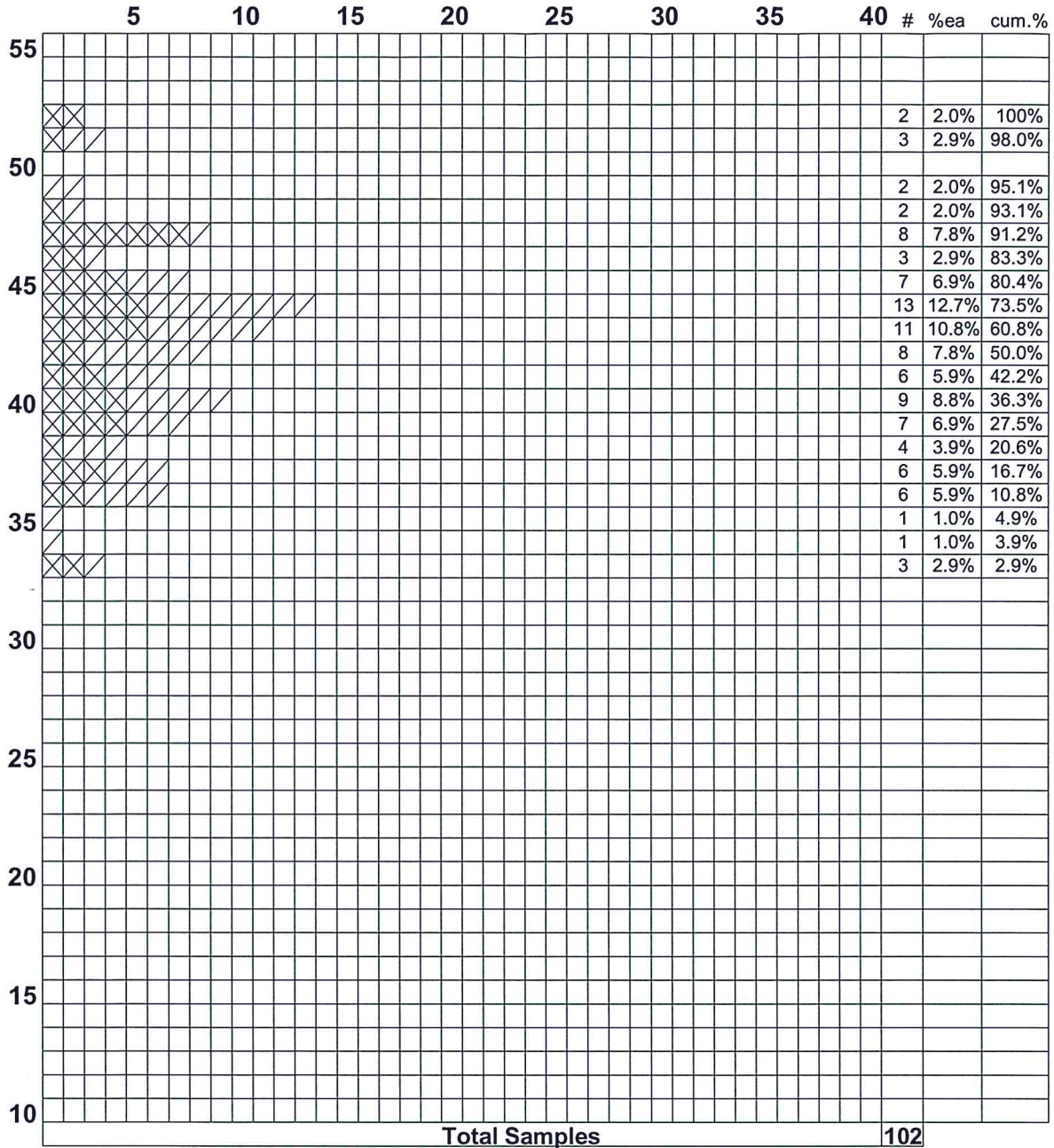
**County of El Dorado  
Transportation Division**

Street Name: GREENSTONE RD

Limits: QUAIL VALLEY RD to STUDEBAKER RD

**Radar Survey Sheet**

X=North / =South



85th Percentile Speed: 47  
 50th Percentile Speed: 42  
 15th Percentile Speed: 37  
 10 MPH Pace: 36-45  
 Number in Pace: 77  
 Percent in Pace: 75.5%

Date of Survey: 1/21/2021      Start Time: 13:10  
 Weather: Clear      End Time: 14:10  
 Road Condition: Good      Posted Speed: 45  
 Street Class.:  
 Observer: M. BASTIAN  
 Conditions not      PEDS = 0, BIKES = 0  
 Apparent:

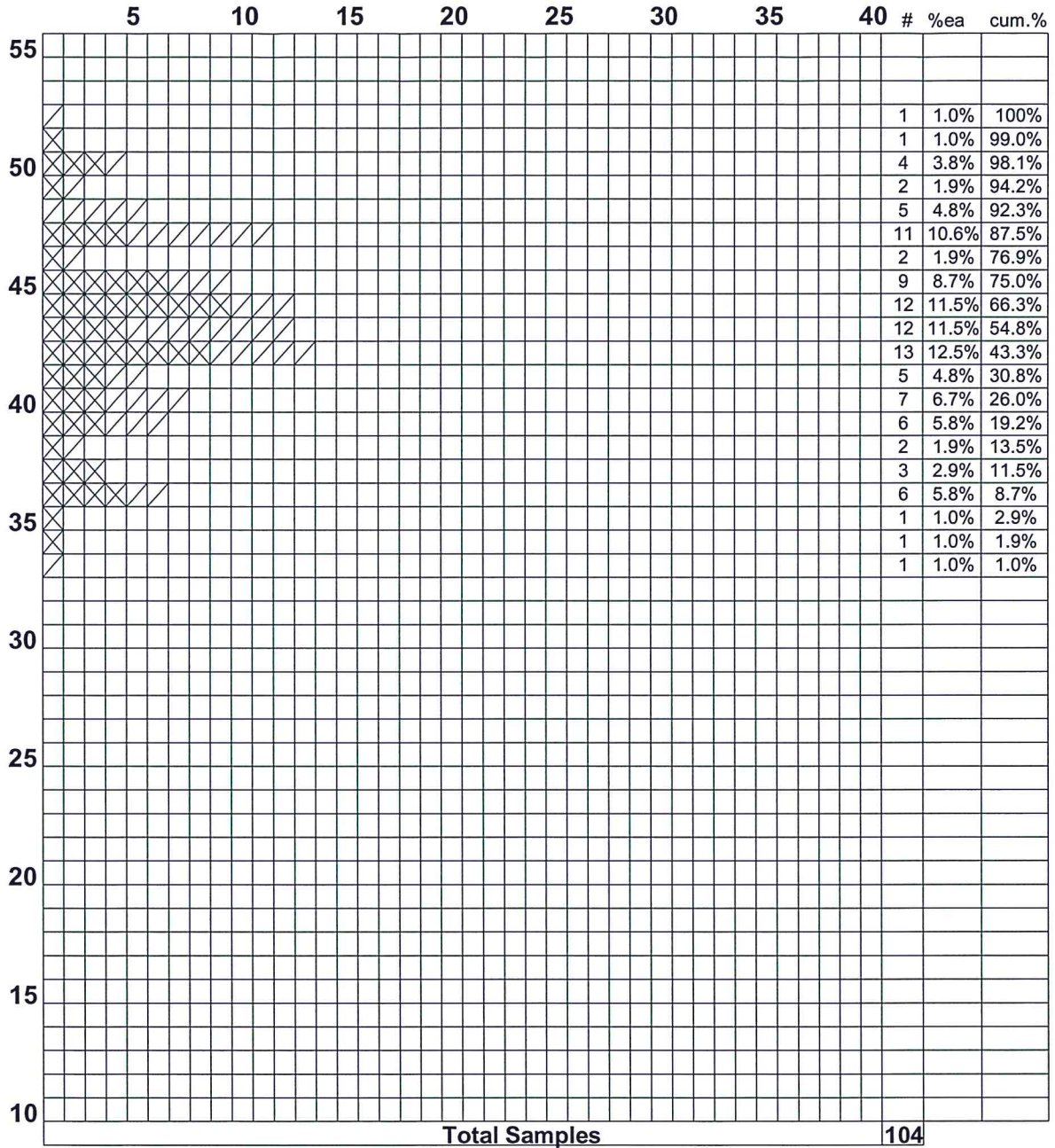
**County of El Dorado  
Transportation Division**

Street Name: GREENSTONE RD MP 0.90

Limits: DAVIDSON RD to FARISH RD

**Radar Survey Sheet**

X=North /-=South



85th Percentile Speed: 47  
 50th Percentile Speed: 43  
 15th Percentile Speed: 39  
 10 MPH Pace: 39- 48  
 Number in Pace: 82  
 Percent in Pace: 78.8%

Date of Survey: 1/21/2021      Start Time: 10:45  
 Weather: Clear      End Time: 12:00  
 Road Condition: Good      Posted Speed: 45  
 Street Class.:  
 Observer: M. BASTIAN  
 Conditions not      PEDS = 0, BIKES = 0  
 Apparent:

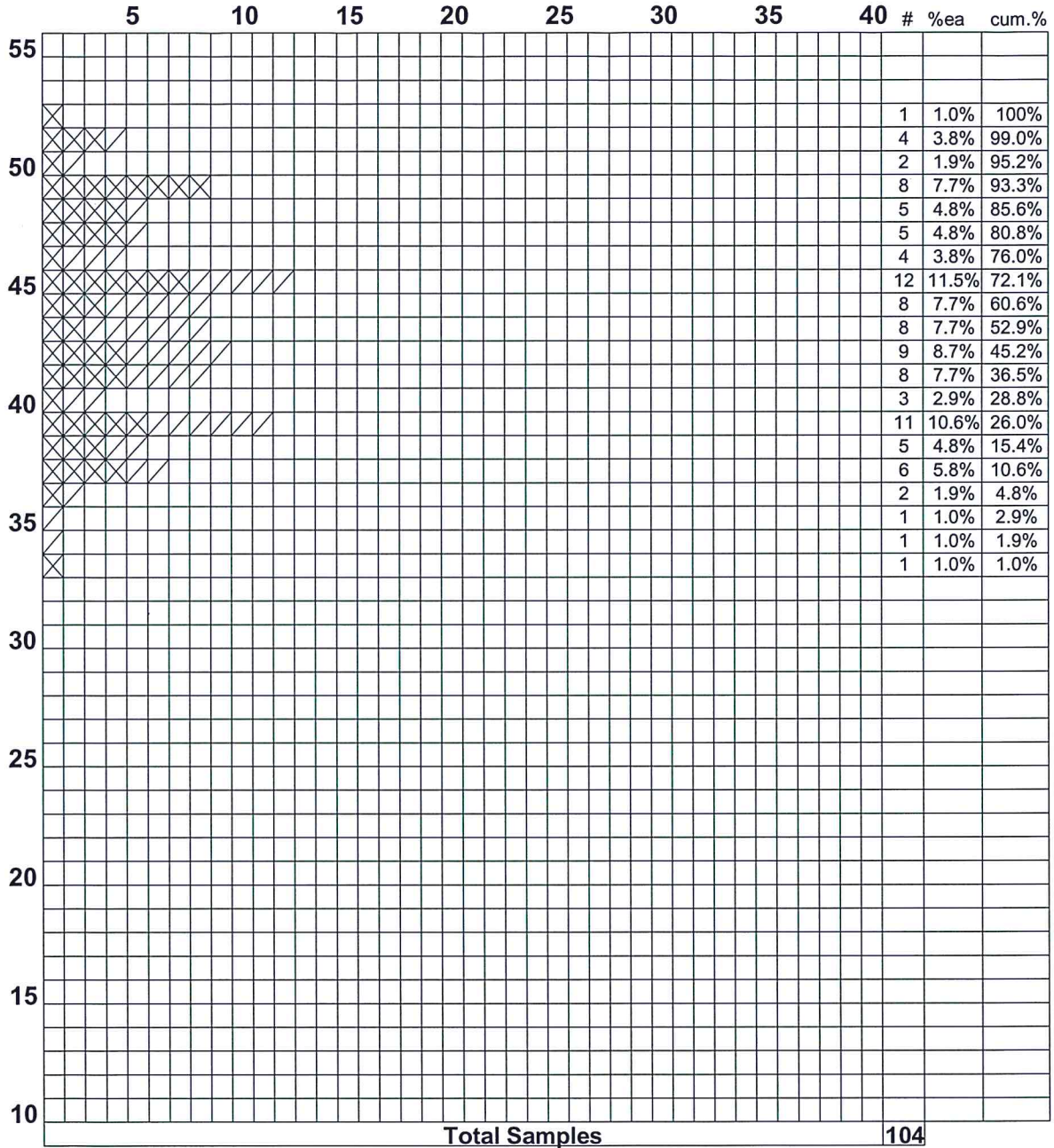
**County of El Dorado  
Transportation Division**

Street Name: GREENSTONE RD

Limits: STUDEBAKER RD (N) to LAVERNE LN

**Radars Survey Sheet**

X=North /-=South



85th Percentile Speed: 48  
 50th Percentile Speed: 43  
 15th Percentile Speed: 38  
 10 MPH Pace: 37-46  
 Number in Pace: 74  
 Percent in Pace: 71.2%

Date of Survey: 2/10/2021  
 Weather: Clear  
 Road Condition: Good  
 Street Class.:  
 Observer: M. BASTIAN  
 Conditions not MP 1.27  
 Apparent:

Start Time: 10:20  
 End Time: 11:30  
 Posted Speed: 45