

Technical Memorandum

October 08, 2026

To	Tengteng Wang, SmithGroup	Contact No.	530.338.3187
Copy to	Todd Tregenza, GHD Shelby Nadin, GHD Jerry Hsu, GHD	Email	Melissa.estrada@ghd.com
From	Melissa Estrada, GHD	Project No.	12663082
Project Name	Humboldt County Regional Vision Zero Action Plan		
Subject	Demonstration Project Data Analysis Memorandum		

1. Introduction

The purpose of this memorandum is to analyze data from the demonstration projects, assessing the project's before-and-after safety benefits.

The demonstration projects analyzed included the following:

- City of Fortuna
 - Radar speed feedback sign (with school zone speed limit sign) on 12th Street
 - Radar speed feedback sign (with school zone speed limit sign) on Ross Hill Road
- City of Arcata
 - Speed hump on K Street
 - Speed hump on 11th Street
- City of Eureka
 - Traffic circle at the Humboldt Street / G Street intersection

For each demonstration project, the implementing city (as listed) provided the demonstration project data to GHD for analysis.

2. Data Analysis

2.1 City of Fortuna

2.1.1 Introduction

The City of Fortuna implemented the “radar speed feedback sign (with school zone speed limit sign)” demonstration project at two locations:

- Southbound (SB) 12th Street (at K Street) (at Fortuna High School)
 - Before data was collected on March 10, 2025.
 - After data was collected on September 14, 2026.
- SB Ross Hill Road (at Acacia Drive) (at Redwood Preparatory Charter School)
 - Before data was collected on April 14, 2025.
 - After data was collected on September 14, 2026.

The radar speed feedback sign provides drivers with a feedback display of vehicle speed. The school zone speed limit sign informs drivers of the approaching school and the speed limit.¹

On SB 12th Street, there is an existing school zone speed limit sign south of the 12th Street/Main Street intersection (see Figure 2.1), approximately 500 feet north of Fortuna High School. Additionally, there are existing school zone speed signs on K Street (east and west of the 12th Street/K Street intersection). These signs note a speed limit of 15 miles per hour (mph).



Figure 2.1 School Zone Speed Limit Sign on 12th Street

¹ Based on California Vehicle Code Section 40802 and 22352, the posted school zone speed limit applies when children are present, including during school arrival, dismissal, and noon recess periods when students are walking, crossing the street, or otherwise using areas adjacent to the roadway.

On SB Ross Hill Road, there is an existing school zone speed limit sign south of the Ross Hill Road/Acacia Drive intersection (see Figure 2.2), approximately 600 feet north of Redwood Preparatory Charter School. This sign notes a speed limit of 25 mph.



Figure 2.2 School Zone Speed Limit Sign on Ross Hill Road

2.1.2 Results

The city-provided dataset recorded average speeds at 15-minute intervals during student arrival and dismissal periods (i.e., from 7:30 AM to 8:15 AM and 3:00 PM to 3:30 PM). The before-and-after data for each location is summarized Table 2.1 and Table 2.2, with “after” including the demonstration project.

As shown in Table 2.1, on 12th Street, the average speed decreased for most time periods, with decreases ranging from 2 to 7 mph. The largest decrease occurred at 3:15 PM (7 mph), where the average speed decreased from 26 mph (before) to 19 mph (after). However, average speeds increased slightly at 8:15 AM (2 mph) and 3:30 PM (1 mph). Overall, the results indicate mixed effectiveness of the demonstration project. Average speeds (before and after) remained above the posted 15-mph school zone speed limit.

As shown in Table 2.2, on Ross Hill Road, the average speed decreased for most time periods, with decreases ranging from 1 to 6 mph. The largest decrease (6 mph) occurred at 7:30 AM, where the average speed decreased from 38 mph (before) to 32 mph (after). However, average speeds increased at 7:45 AM (7 mph) and 8:15 AM (1 mph). Overall, the results indicate mixed effectiveness of the demonstration project. Average speeds (before and after) remained above the posted 25-mph school zone speed limit.

Table 2.1 Fortuna 12th Street Demonstration Project: Before/After Data

Student Periods	Time	Posted Speed Limit	Average Speed Before (mph)	Average Speed After (mph)	Change in Average Speed (mph)
Arrival	7:30 AM	15	25	22	-3
	7:45 AM		23	21	-2
	8:00 AM		23	21	-2
	8:15 AM		21	23	2
Dismissal	3:00 PM		25	21	-4
	3:15 PM		26	19	-7
	3:30 PM		21	22	1

Table 2.2 Fortuna Ross Hill Road Demonstration Project: Before/After Data

Student Periods	Time	Posted Speed Limit	Average Speed Before (mph)	Average Speed After (mph)	Change in Average Speed (mph)
Arrival	7:30 AM	25	38	32	-6
	7:45 AM		26	33	7
	8:00 AM		35	34	-1
	8:15 AM		34	35	1
Dismissal	3:00 PM		35	33	-2
	3:15 PM		35	32	-3
	3:30 PM		36	35	-1

2.2 City of Arcata

2.2.1 Introduction

The City of Arcata implemented the “speed hump” demonstration project at two locations:

- 11th Street (at N Street)
 - Before data was collected between O Street and P Street from April 11-22, 2022.
 - After data was collected between N Street and O Street from August 4-12, 2026.
- K Street (at 8th Street)
 - Before data was collected between 4th Street and 13th Street from May 10-17, 2012.
 - After data was collected between 7th Street and 8th Street from August 5-12, 2026.

The purpose of a speed hump is to discourage speeding by producing sufficient discomfort to motorists driving through it.

11th Street is a collector roadway with a posted speed limit of 25 mph and K Street is an arterial roadway with a posted speed limit of 25 mph.

2.2.2 Results

The city-provided dataset was a speed survey. The before-and-after data for each demonstration project is summarized in Table 2.3 and Table 2.4, with Year 2022 representing the “before data” and Year 2026 representing the “after data” (including the demonstration project).

The tables compare different traffic speed metrics. The 85th Percentile Speed is the speed at or below which 85 percent of the drivers travel on the road segment (typically represents prevailing speeds). The 50th Percentile Speed is the speed at or below which 50 percent of the drivers travel on the road segment (typically represents

median speed). The 10-mph Pace Speed identifies the 10-mph speed range containing the greatest number of vehicles, while the percent in pace speed represents the percentage of vehicles traveling within that speed range.

As shown in Table 2.3, on 11th Street, the 85th Percentile Speed decreased from 33 mph to 26 mph, while the 50th Percentile Speed decreased from 26 mph to 22 mph. Speeds were reduced, but the 85th Percentile Speed (prevailing speed) remained slightly above the posted 25-mph speed limit. The 10-mph pace shifted from 21-30 mph to 17-26 mph, including a greater percent in the after pace speed (78%). Overall, the demonstration project reduced speeds, yielding speeds closer to the posted 25-mph speed limit.

As shown in Table 2.4, on K Street, the 85th Percentile Speed decreased from 30 mph to 26 mph, while the 50th Percentile Speed decreased from 25 mph to 22 mph. Speeds were reduced, but the 85th Percentile Speed (prevailing speed) remained slightly above the posted 25-mph speed limit. The 10-mph pace shifted from 22-31 mph to 16-25 mph, including a greater percent in the after pace speed (77%). Overall, the demonstration project reduced speeds, yielding speeds closer to the posted 25-mph speed limit.

Table 2.3 *Arcata 11th Street Demonstration Project: Before/After Data*

Street	Year	Segment	ADT	Posted Speed Limit (mph)	85th Percentile Speed (mph)	50th Percentile Speed (mph)	10-MPH Pace Speed (mph)	Percent in Pace Speed
11th Street	2022 (Before)	O St and P St	1,807	25	33	26	21-30	64%
	2026 (After)	N St and O St	2,815		26	22	17-26	78%
<i>Change in Speed</i>					-7	-4		14%

Table 2.4 *Arcata K Street Demonstration Project: Before/After Data*

Street	Year	Segment	ADT	Posted Speed Limit (mph)	85th Percentile Speed (mph)	50th Percentile Speed (mph)	10-MPH Pace Speed (mph)	Percent in Pace Speed
K Street	2012 (Before)	4th St to 13th St	3,700	25	30	25	22-31	64%
	2026 (After)	7th St and 8th St	4,342		26	22	16-25	77%
<i>Change in Speed</i>					-4	-3		13%

2.3 City of Eureka

2.3.1 Introduction

The City of Eureka implemented the “traffic circle” demonstration project at the following location:

- Humboldt Street / G Street intersection
 - Before data was collected on September 21, 2026.
 - After data was collected on August 31, 2026 at 4:00 p.m. (non-school hour).
 - After data was collected on August 20, 2026 at 2:00 p.m. (school hour).

A traffic circle on a residential street is intended to keep speeds to a minimum. Traffic circles have been shown to increase safety at intersections.

For the purposes of this evaluation, a posted speed limit of 25 mph was assumed, as this is the standard for most local streets in the city.

2.3.2 Results

The city-provided dataset was a Currux Vision dataset, which listed vehicle counts, types, and speeds using northbound (NB), eastbound (EB), southbound (SB), and westbound (WB) cameras. The before-and-after data for the demonstration project is summarized in Table 2.5 and Table 2.6, with “after” including the demonstration project.

As shown in Table 2.5, at the Humboldt Street/G Street intersection (during the non-school hour), the average speed decreased from the SB, EB, and WB cameras/directions, but the average speed increased (2 mph) on the NB camera/direction. With the exception of the SB camera/direction, average speeds (before and after) were below the assumed 25-mph speed limit. The SB camera/direction without the project (before) was above 25-mph (32 mph), while the SB camera/direction with the project (after) was below 25-mph (20 mph).

Table 2.5 *Eureka Humboldt Street/G Street Demonstration Project: Before/After (Non-School Hour) Data*

Camera	Assumed Speed Limit (Mph)	Average Speed Before (mph)	Average Speed After (mph)	Change in Average Speed (mph)
NB	25	12	14	2
SB		32	20	-12
EB		11	10	-1
WB		11	9	-2

As shown in Table 2.6, at the Humboldt Street/G Street intersection (during the school hour), the average speed decreased from the NB, SB, and EB cameras/directions, but the average speed increased (2 mph) on the WB camera/direction. With the exception of the SB camera/direction, average speeds (before and after) were below the assumed 25-mph speed limit. The SB camera/direction without the project (before) was above 25-mph (32 mph), while the SB camera/direction with the project (after) was below 25-mph (20 mph).

Table 2.6 *Eureka Humboldt Street/G Street Demonstration Project: Before/After (School Hour) Data*

Camera	Assumed Speed Limit (Mph)	Average Speed Before (mph)	Average Speed After (mph)	Change in Average Speed (mph)
NB	25	12	11	-1
SB		32	20	-12
EB		11	6	-5
WB		11	13	2

Comparing Table 2.5 and Table 2.6, average speeds after—both during the non-school and during the school hour—were relatively similar. As such, results are similar. Mostly, the demonstration project reduced speeds, including the SB camera/direction (12 mph), yielding speeds below the assumed 25-mph speed limit.