



Traffic Safety Study Session

Joint City Council/Traffic Safety Committee meeting

June 13, 2023



Folsom Lake Corridor



Folsom Lake Corridor



Corridor Traffic Safety Issues



1. Fatal/Severe Injury collisions
2. Vehicles entering curves at unsafe speeds
3. Concerns about excessive speed along East Natoma corridor
4. Concerns about sight distance at East Natoma/Gionata intersection
5. Request for traffic signal at East Natoma/Gionata intersection

Traffic Safety Assessment

Standard Assessment Methods

- Frequency
 - Collisions per million vehicle miles (MVM) for road segments
 - Collisions per million entering vehicles (MVE) for intersections
- Location
 - Utilize pin map and/or GIS to determine locations with high number of collisions
 - Intersection collision diagrams
- Severity
 - Ranked from Fatal (most severe) to Property Damage Only (PDO, least severe)
 - Degrees of injury range from Severe to Other Visible to Complaint of Pain
- Involved parties
 - Focusing on specific groups such as Driving Under Influence (DUI), Vehicle vs. Pedestrian
- Primary Collision Factors
 - Speeding, DUI, Right-of-Way,
- Secondary Collision Factors
 - Weather, lighting, surface conditions

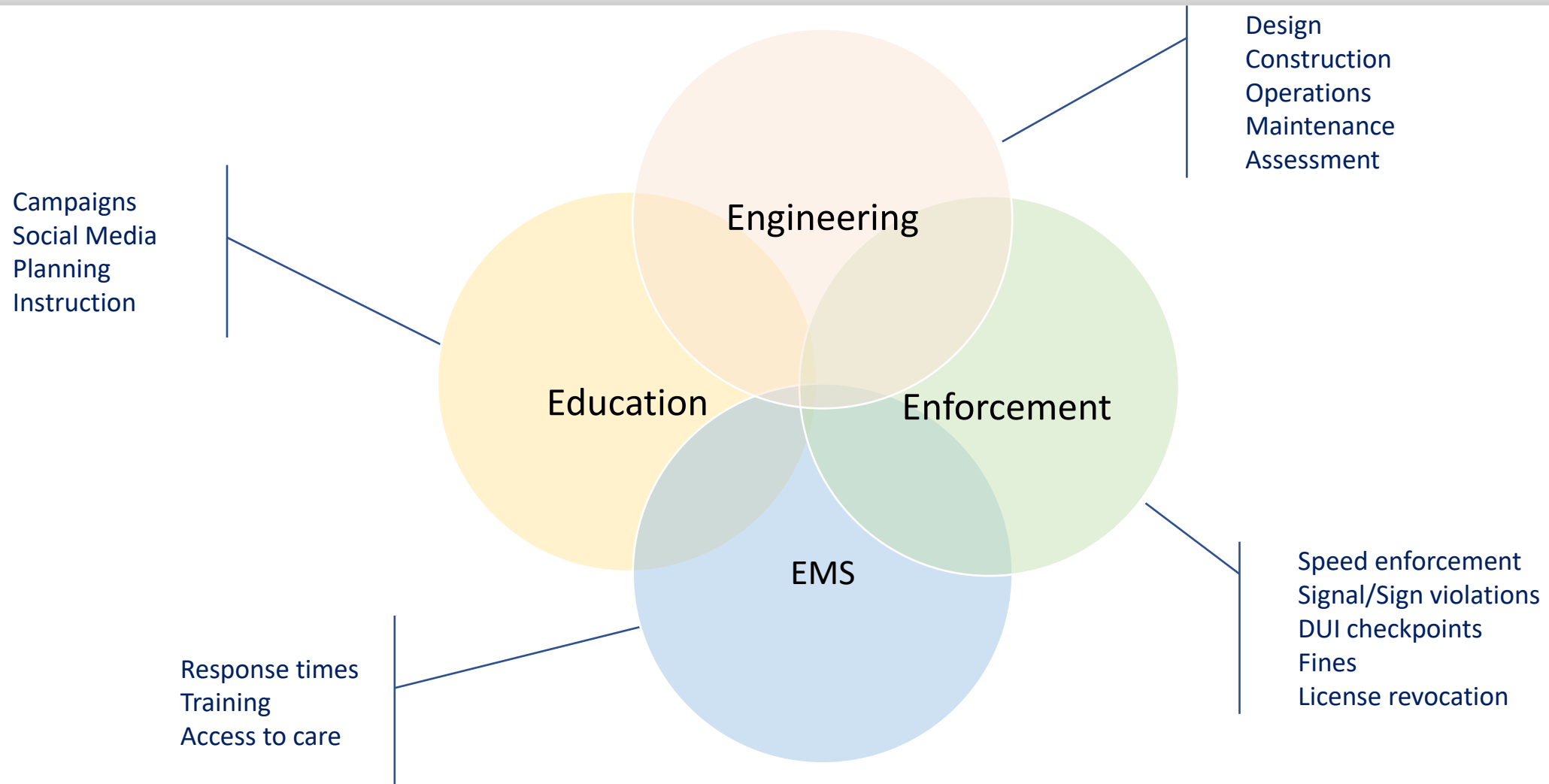
Collision Severity (Citywide)

Severity	2015	2016	2017	2018	2019	Avg.	Total
Fatal or Severe Injury	14	17	16	15	21	16.6	83 ^a
Other Injury Levels	243	217	220	216	192	217.6	1,088 ^b
Property Damage Only	358	375	339	308	360	348.0	1,740
Total by Year	615	609	575	539	573	582.2	2,911

Source: City of Folsom Local Road Safety Plan, June 2021

- a. 29 fatal, 54 severe injury
- b. 297 visible injury, 791 complaints of pain

The Four “E”s of Traffic Safety



Local Road Safety Plan

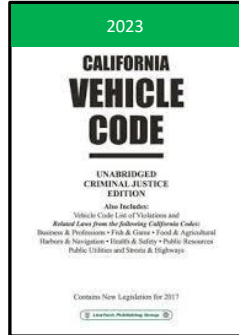


- Goal 1: Systematically identify and analyze roadway safety problems and recommend improvements
- Goal 2: Improve the safety of pedestrians and bicyclists by using proven, effective countermeasures
- Goal 3: Ensure coordination of key stakeholders to implement roadway safety improvements and response within Folsom
- Goal 4: Continually seek funding for safety improvements
- Goal 5: Ensure that safety improvements are made in a fair and equitable manner for all Folsom residents

Speed Studies and Speed Limits

- Review the Basic Speed Law and regulations governing speed limits
- What is an Engineering and Traffic Survey?
- What are the current speed conditions on the corridor?

Regulations governing speed limits



Section 627 – Engineering and Traffic Survey (defines parameters of a valid Engineering & Traffic Survey)

Section 21400 – Rounding of Speed Limits (Allows for rounding **85th percentile** to nearest 5mph increment)

Section 22349 – Maximum Speed Limits

Section 22350 – Basic Speed Law

Section 22351 – Speed Law Violations

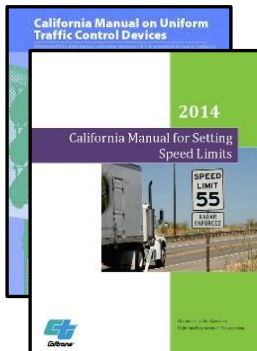
Section 22352 – Prima Facie Speed Limits

Section 22357 – Increase of Local Speed Limits

Section 22358 – Decrease of Local Speed Limits

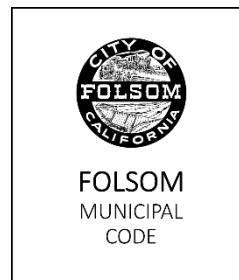
Section 22358.5 – Downward Speed Zoning

Section 40802 – Prima Facie Speed Limits (requires a valid ETS in order to use radar for speed enforcement)



Manual of Uniform Traffic Control Devices – Establishes Policy and Methodology

California Manual of Setting Speed Limits – Standards and Procedures for determining speed limits



Section 10.08.030 – Speed Limits shall be established by an ETS and adopted by ordinance of City Council

Basic Speed Law

“No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property.”

(California Vehicle Code, Section 22350)

What is an Engineering & Traffic Study?

- Determine the prevailing (prima facie) speed
- Enables use of radar for speed enforcement
- Encourages uniform driving behavior

“The setting of speed limits can be controversial and requires a rational and defensible determination to maintain public confidence. Speed limits cannot be set arbitrarily low, as this would create violators of the majority of drivers and would not command the respect of the public.” (from California Manual on Uniform Traffic Control Devices)

Engineering & Traffic Study


Segment # 11

Street: Blue Ravine Road
Limits: Bidwell St. to Oak Ave. Pkwy.
Direction: EB/WB

Factors

A. Prevailing Speed Data

Date /Location of Survey	11/8/2018
Posted Speed Limit (mph)	45
# Speed Data Collected	179
85th Percentile (mph)	46
10 mph Pace	34-43
Percent in Pace	64%



B. Traffic Factors

Average Daily Traffic (ADT)	22,200
Length of Segment (mi.)	1.06
Street Classification	Major Arterial

C. Collision History

Date Range Covered	1/1/2013-12/31/2017
Total Accidents	49
Accident Rate (Acc/MVM)	1.14
Statewide Average Accident Rate	1.61

D. Roadway Conditions

Adjacent Land Use: Adjacent land uses include residential, accessed via side streets, shopping centers, and one school.

Roadway Geometrics: Four-lane undivided roadway with two-way left turn lane, bike lanes, turn pockets, and continuous sidewalks on the north side. North of E. Bidwell St., there is a short section of raised median. Crosswalks are provided at the signalized intersections. There is a 25 mph school zone on the segment. The segment features multiple horizontal and gentle vertical curves.

Comments: Results of attached engineering & traffic survey information support maintaining the existing 45 mph speed limit.

Speed Limit Change? No


Existing Speed Limit: 45 Recommended Speed Limit: 45

This survey conforms to Section 627 and 40802 of the California Vehicle Code and Section 2B.13 of the California MUTCD and recommends a speed limit appropriate to facilitate the safe and orderly movement of traffic.

Approved and Authorized for release by The City of Folsom Public Works:

Chris D. Krizal

Title: Vice President, TJKM Transportation Consultants



1

Name of street, location of survey, direction of travel

2

Prevailing speed data
Map of road segment

3

Traffic factors (daily traffic volume, length, street classification)

4

Collision history (5-year collision history, collision rate, comparison to State average)

5

Roadway conditions (adjacent land use, road geometrics, engineer's comments)

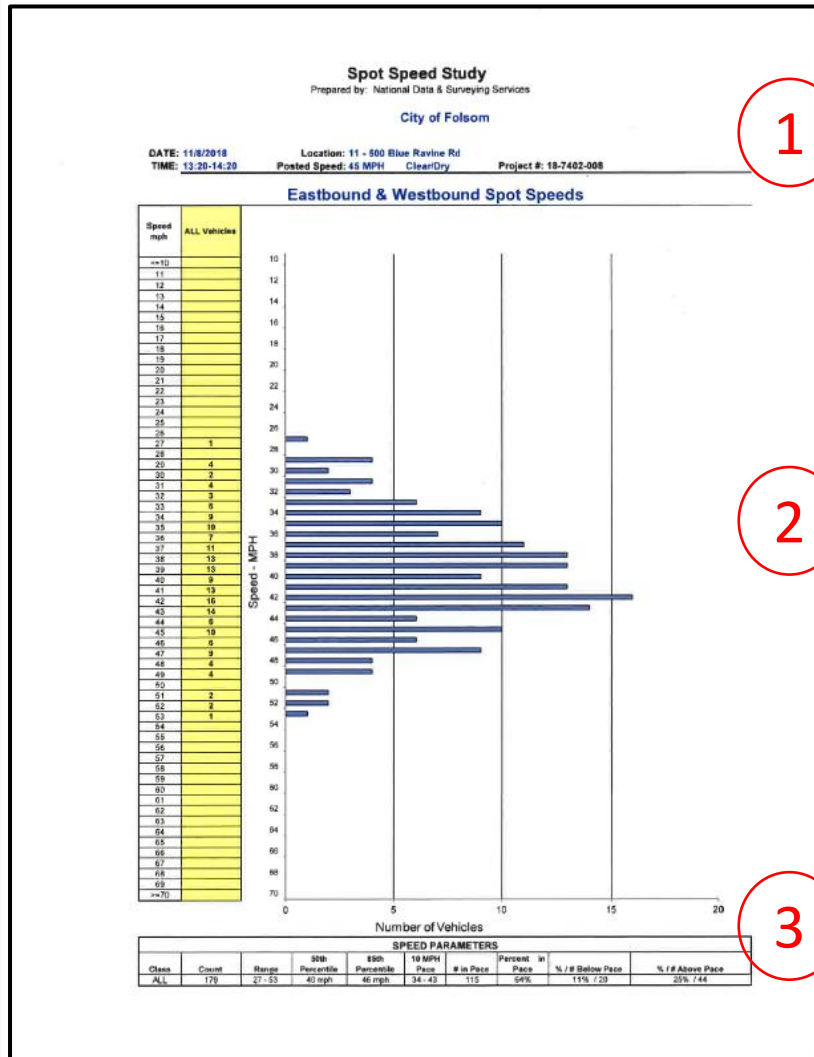
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Engineer's conclusions, recommendations, signature, engineering stamp



Each ETS was performed under the supervision of a licensed engineer with extensive experience in the collection of speed data and determination of recommended speed limits

Engineering & Traffic Survey

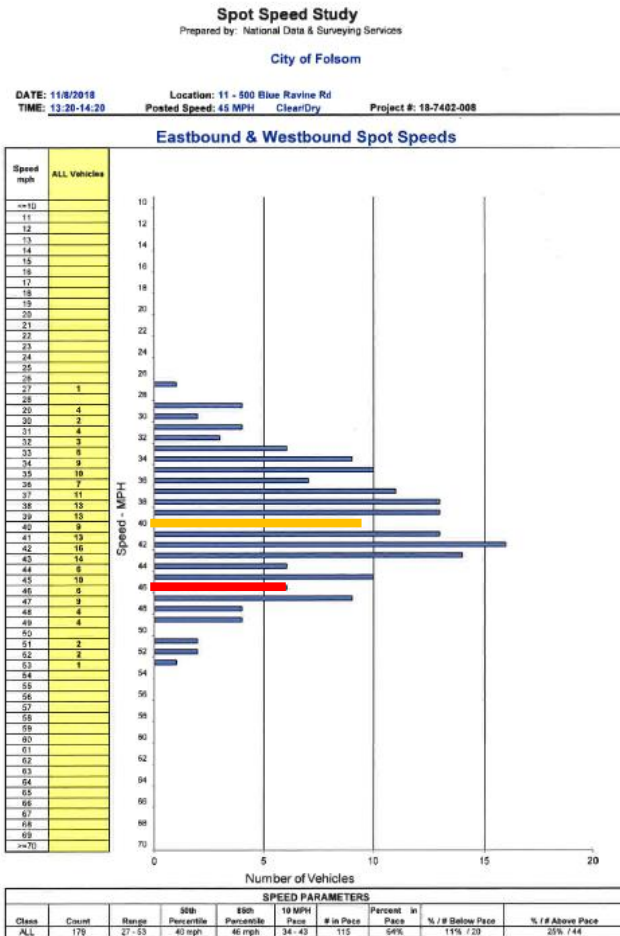


Name of street
Location of survey
Survey Date and time of day
Direction of travel
Weather conditions

Number of vehicles surveyed
Number of vehicles in each speed range
(graphically and numerically)

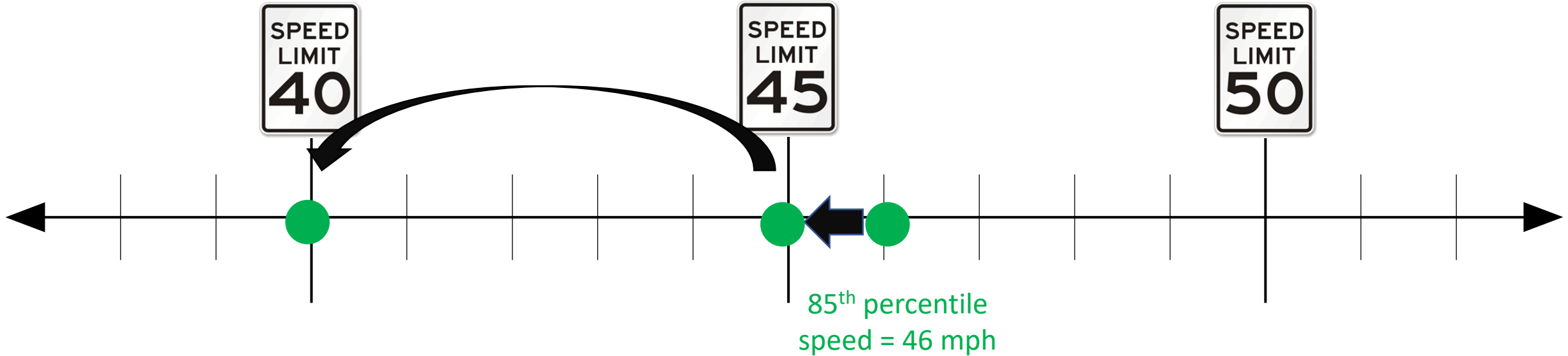
Total range of speeds (lowest 27 mph, highest 53 mph)
50th Percentile (40 mph)
85th Percentile (46 mph)
10-MPH Pace (34 to 43 mph)
Percent of vehicles in, above and below the Pace (64% in pace)

Engineering & Traffic Survey

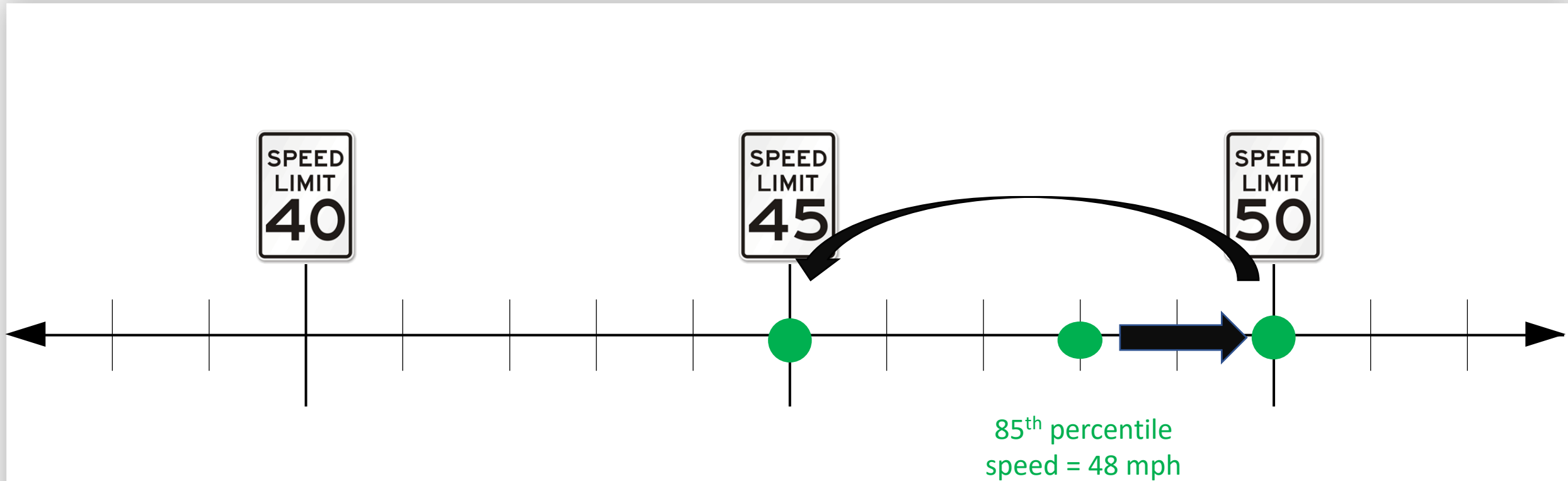


“The establishment of a speed limit of more than 5 mph below the 85th percentile speed should be done with great care as studies have shown that establishing a speed limit at less than the 85th percentile generally results in an increase in collision rates; in addition, this may make violators of a disproportionate number of the reasonable majority of drivers.”
From: California Manual on Uniform Traffic Control Devices

ETS: Rounding to nearest 5 MPH



ETS: Downward Speed Zoning



Folsom Lake Corridor



East Natoma Speed Data

Date	D.O.W.	Location	85 th Percentile	10-mph Pace	% in Pace	Avg Daily Volume
1/30/19	Wed	West of Folsom Point	47	37-46	72%	34,100
6/16-23/21	Var.	West of Gionata	55	48-57	29%	12,700
4/4/23	Tue	West of Gionata	49			30,500
4/4/23	Tue	East of Gionata	48			30,100
4/5/23	Wed	West of Gionata	49			30,900
4/5/23	Wed	East of Gionata	48			30,700
4/6/23	Thu	West of Gionata	49			30,700
4/6/23	Thu	East of Gionata	48			30,500

Speed Studies and Speed Limits



- ✓ Review the Basic Speed Law and regulations governing speed limits
- ✓ What is an Engineering and Traffic Survey?
- ✓ What are the current speed conditions on the corridor?

Any questions about speed studies, speed limits or current speed conditions on the corridor?

Traffic Signals

Explain what traffic signals can do (traffic flow, operations, safety) and what they cannot do effectively (such as speed regulation).

Explain signal warrants and why we need minimum standards for determining signal placement.

“Traffic control signals, even when justified by traffic and roadway conditions, can be ill-designed, ineffectively placed, improperly operated, or poorly maintained. Improper or unjustified traffic control signals can result in one or more of the following disadvantages:

- A. Excessive delay,
- B. Excessive disobedience of the signal indications,
- C. Increased use of less adequate routes as road users attempt to avoid the traffic control signals, and
- D. Significant increases in the frequency of collisions (especially rear-end collisions).”

(from California Manual on Uniform Traffic Control Devices)

Traffic Signal Warrants

Warrant No.	Name	Description
1	Eight-Hour Vehicular Volume	Sustained, high volumes of intersecting traffic
2	Four-Hour Vehicular Volume	High volumes of intersecting traffic, any four hours
3	Peak Hour	Excessive minor street delay
4	Pedestrian Volume	Pedestrian delay
5	School Crossing	School-age pedestrian crossing
6	Coordinated Signal System	Maintain platooning along a coordinated system
7	Crash Experience	Severity/Frequency of collisions correctable by traffic control
8	Roadway Network	Intersection of two major routes
9	Intersection Near Grade Crossing	Proximity to an at-grade rail crossing

East Natoma/Gionata Warrants

Warrant No.	Name	Staff Review (Planning)	KHA Study (Planning)	TJKM Study (Detailed)	KHA Study (Peer review)
1	Eight-Hour Vehicular Volume	No	No	No	No
2	Four-Hour Vehicular Volume	No	No	No	No
3	Peak Hour	No	No	No	No
4	Pedestrian Volume	No	No	No	No
5	School Crossing	No	No	No	No
6	Coordinated Signal System	No	No	No	No
7	Crash Experience	No	No	No	No
8	Roadway Network	No	No	No	No
9	Intersection Near Grade Crossing	No	No	No	No

June 2008



Present Day



Traffic Collision History

Insert KHA slides here.

Corrective Action Summary

- ✓ Radar speed feedback sign and reflective bollards installed on westbound East Natoma at curve between Gionata and Folsom Lake Crossing
- ✓ Median Barrier Project (Phase 1)
 - ✓ HSIP funding obtained Design completed
 - Out for construction bids Spring 2023
 - Construction expected Summer 2023
 - CDS funding secured for Phase 2
- Open-grade asphalt Friction Course to be installed Summer 2023
- Additional radar speed feedback signs
- Updated engineering studies for speed zoning and possible speed limit changes
- Local Road Safety Plan Update