



## INTER-OFFICE MEMORANDUM

TO: Rebecca Neves, P.E., City Engineer

FROM: Melissa McConnell, P.E., Associate Civil Engineer

DATE: December 15, 2020

SUBJECT: Upper Broadway Bike Lanes (Including Upper Broadway Pedestrian Connection) Project – CIP #41508 – Proposed Speed Limit Reduction

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### **Background**

The Upper Broadway Bike Lanes Project (Including Upper Broadway Pedestrian Connection) will construct bicycle facilities along Broadway between Schnell School Road and Point View Drive. The project will widen the southern side of the street to provide a Class II bike lane in the uphill/eastbound direction, and a Class III bike route will be included in the downhill/westbound direction. The original design plans for the project proposed to construct two new segments of curb, gutter, and sidewalk on the south side of Broadway: 1) from the Schnell School Road intersection to approximately the westernmost driveway at Grocery Outlet and, 2) from approximately 1700 Broadway to Point View Drive. The original design plans proposed the construction of seven retaining walls to support the roadway widening for the bicycle and pedestrian improvements.

Early in construction, some unanticipated constraints made it necessary to eliminate two of the proposed retaining walls from the project. These changes provided additional budget that enabled the construction of a third segment of curb, gutter, and sidewalk on the south side of Broadway from 1500 Broadway to 1600 Broadway.

*Pre-Project Conditions:* Prior to construction, Broadway was a narrow 2-lane roadway with 11-ft lanes and limited shoulders. Hangtown Creek runs parallel to Broadway on the south side of the street and Highway 50 runs parallel on the north side. There were no bicycle and pedestrian facilities within the project limits. The posted speed limit on Broadway ranged from 25 mph at the western end to 40 mph at the eastern end (see Attachment A).

*Post-Project Conditions:* Broadway has been widened to have two 11-ft lanes, a 2-ft paved shoulder on the north side of the street, a 4-to-6-ft-wide bike lane on the south side of the street (uphill direction), and curb, gutter and sidewalk on the south side of the street in the three locations noted above. In the area of no curb, gutter and sidewalk, the roadway has been widened to provide a paved shoulder for pedestrian use. The westbound (downhill)

direction has pavement markings and signage indicating a Class III bike route (i.e., vehicles and bicycles share the lane).

As noted above, two retaining walls were eliminated from the project due to unforeseen constraints. One of those walls was originally planned to be located adjacent to the southern edge of the roadway along the creek through the intersection of Broadway and Smith Flat Road. Unforeseen utility conflicts precluded the roadway widening and the retaining wall could not be constructed in this area. The roadway design was modified to fit in a narrower cross section within the existing roadway, including a 1-ft wide shoulder on the north side, two 11-ft wide travel lanes, a 4-ft wide bike lane, and approximately a 3-ft wide shoulder on the south side. A raised curb and gutter was constructed along the existing Caltrans crib wall on the north side of the road, and a pedestrian railing was placed along the south side of the road adjacent to the creek. The new roadway alignment through this intersection has a tighter radius of horizontal curvature than the pre-project roadway alignment.

*Design Standards:* According to the *AASHTO Guide for the Development of Bicycle Facilities*, 4<sup>th</sup> Edition, 2012 (see Attachment B) bicycles may be operated on all roadways except where prohibited by statute or regulation. Rural roadways that carry low volumes of traffic and operate at speeds less than 55 mph are suitable as shared lanes for bicycles and vehicles (without bicycle-specific pavement markings). In more urban environments where it is beneficial to provide a higher level of guidance to bicycles and motorists, a designated Class III bike route with specific pavement markings and signage indicating the bicycle facility type may be more suitable. The pavement markings alert drivers to the presence of bicycles within the roadway and also encourages safer passing of bicycles.

The *AASHTO Guide for the Development of Bicycle Facilities* also notes that on confined roadways with a steep downgrade where there is only space for one bicycle lane, the Class II bike lane should be provided in the direction of the upgrade where the bicycle is likely to be operating at a much slower speed while moving uphill. A Class III bike route is suitable for the downhill direction. Additionally, the design guidelines recommend that the roadway should not have a speed limit above 35 mph where there is a Class III bicycle facility.

### **Engineering and Traffic Survey**

Typically, an Engineering and Traffic Survey is prepared in order to modify the existing posted speed limit on a road. The survey typically includes: field observations; analysis of road geometry; review of accident data; collection of speed data; and evaluation of the surrounding land uses, roadway crossings, and other relevant information that may contribute to special circumstances. Speed limit recommendations are then based on factors such as the 85<sup>th</sup>-percentile speed, accident history and accident rates, roadway type, and roadway geometry. According to the *California Manual on Uniform Traffic Control Devices* guidance for conducting Engineering and Traffic Surveys, when qualifying an appropriate speed limit, local authorities may consider pedestrian and bicycle safety as a factor. Furthermore, other factors that should be considered in setting reasonable speed limits include, but are not limited to, roadway shoulder conditions and pedestrian traffic in the roadway without sidewalks.

During final design of the project an Engineering and Traffic Survey Summary was conducted to assess the proposed speed limit reduction on Broadway. In June 2019, the Placerville Police Department collected speed data on Broadway near 1700 Broadway, within the limits of the existing 40 mph posted speed limit. The speed survey captured data for the westbound direction, which is now the direction of the Class III bike route/shared lane. The speed survey summary is provided in Attachment C.

The speed survey data was then used by the Engineering Department to document an Engineering and Traffic Survey Summary (see Attachment D). The average speed collected in the speed survey was 33.6 mph, and the 85<sup>th</sup>-percentile speed was 41.65 mph.

### **Recommendations**

Although the results of the speed survey indicated the 85<sup>th</sup>-percentile speed was just above the posted speed limit, the new project improvements fundamentally change the character of the roadway, the type of usage, and the geometry of Broadway due to the new bicycle and pedestrian facilities. The Engineering Department recommends reducing the posted speed limit in both directions on Broadway from 40 mph to 35 mph from 800 feet east of Smith Flat Road to Point View Drive (see Attachment E). This change enables the City to provide the Class III bike route in the westbound direction according to AASHTO design standards, and provides safer conditions in the eastbound direction where vehicular traffic is traveling next to the pedestrian walkway/shoulder. Overall, the speed limit reduction will help drivers be more aware of the new bicycle and pedestrian facilities and will provide safe conditions for all roadway users.

Placerville City Code section 9-2-1 addresses speed limit restrictions on various streets within the City. The City code will need to be revised to address the speed limit reduction on Broadway from 800 feet east of Smith Flat Road to Point View Drive. The proposed revisions to the City Code are shown in Attachment F.

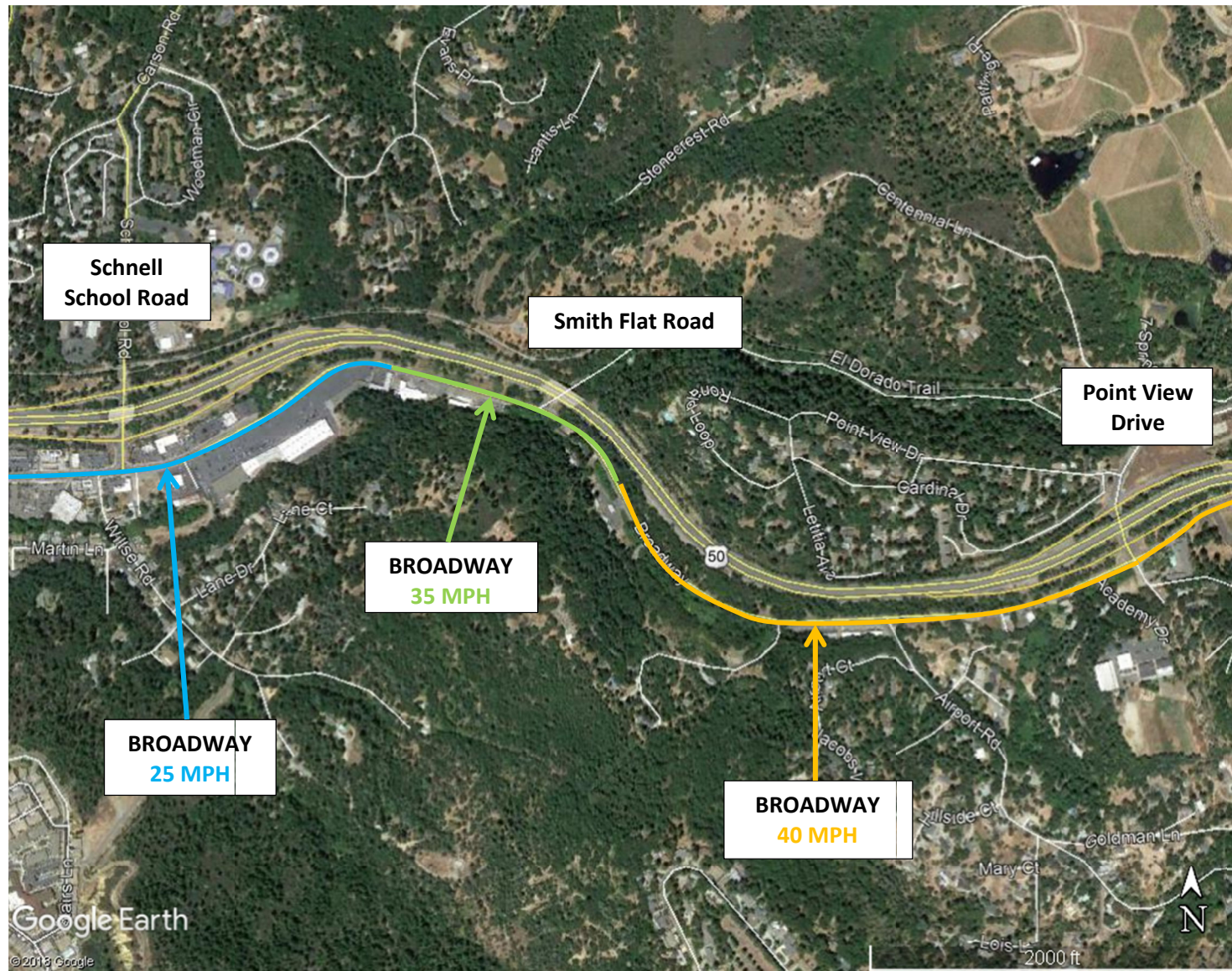
Additionally, as discussed above, the horizontal alignment of Broadway has changed through the intersection with Smith Flat Road. Given the proximity of the westbound travel lane to the crib wall supporting the Highway 50 fill slope as well as the new radius of curvature, it is recommended that additional safety measures are implemented in this location. The Engineering Department recommends installation of a horizontal alignment warning sign (W1-2a) in the westbound direction in advance of the curve (i.e, east of Smith Flat Road). This sign will be a horizontal curve warning sign with a reduced speed limit of 30 mph. Additionally, a series of chevron alignment warning signs (W1-8) will be placed along the crib wall through the horizontal curve.

After the project has been completed and the road is open to traffic for six months, the Engineering Department recommends that a follow-up speed survey is conducted to capture the speeds of both directions of traffic on the new roadway geometry.

At that time, the Engineering Department will assess if further changes to the speed limit or additional safety measures may be needed.

**List of Attachments:**

- A. Existing Speed Limit Exhibit
- B. Excerpt from AASHTO *Guide for the Development of Bicycle Facilities*, 2012
- C. Speed Survey Summary
- D. Engineering and Traffic Survey Summary
- E. Proposed Speed Limit Exhibit
- F. Proposed City Code Revisions



**Exhibit 1 – Existing Speed Limit (both directions)**



Photo courtesy of Patricia Little.

# Design of On-Road Facilities

## 4.1 INTRODUCTION

This chapter provides an overview of designs that facilitate safe and convenient travel for bicyclists on roadways. Bicyclists have similar access and mobility needs as other users of the transportation system and may use the street system as their primary means of access to jobs, services, and recreational activities. As the previous chapter discusses, bicycles and bicyclists have many unique features and characteristics that should be understood in order to design successfully for this mode.

Unlike the operator of a motor vehicle, whose primary responsibility is navigation and operation, the bicyclist also provides the power to propel the vehicle and maintains the balance necessary to keep the vehicle upright. When traffic is not congested, bicyclists usually travel more slowly than other vehicular operators on the roadway. The speed at which bicyclists can travel is limited by the relative physical strength and fitness of the operator, the terrain and geometry of the roadway, and the gearing and condition of the individual bike. Two tandem wheels make the bicycle inherently more maneuverable than an automobile, but a bicyclist is significantly more vulnerable to injury in the event of a crash. While motor vehicle operators must reach a certain age before being eligible for a license to operate on the public way, bicyclists are subject to no age limitations. All of these factors make proper bicycle facility design critical.

The guidance provided in this chapter is based on established practice supported by relevant research where available. The treatments described reflect typical situations; local conditions may vary and engineering judgment should be applied.

## 4.2 ELEMENTS OF DESIGN

To some extent, basic geometric design guidelines for motor vehicles will result in a facility that accommodates on-street bicyclists. If properly designed for motor vehicles, roadway design elements such as stopping sight distance, horizontal and vertical alignment, grades, and cross slopes will meet or exceed the minimum design

standards applicable to bicyclists. For example, with the exception of recumbent bicyclists, most adult bicyclists have an eye height that is higher than the standard motorist eye height which is used to determine stopping sight distance.

Surface condition and pavement smoothness are important to bicyclist control and comfort. Gravel roads, loose material, cracks, bumps, and potholes on a paved roadway create an impediment for bicyclists and will have an impact on which routes a bicyclist will choose. Chip-sealed surfaces can pose particular difficulties for bicycles. Existing and anticipated bicycle use should be reviewed as part of the decision to use chip-sealed surfaces. Where practical, avoiding chip-sealed surfaces will encourage bicycle use. The impacts of chip seals on bicyclists can be reduced by using a fine mix and covering with a fog or slurry seal.

### 4.3 SHARED LANES

Bicycles may be operated on all roadways except where prohibited by statute or regulation. In most instances, bicyclists and motor vehicles share the same travel lanes. Shared lanes exist everywhere; on local neighborhood streets, on city streets, and on urban, suburban, and rural highways. There are no bicycle-specific designs or dimensions for shared lanes or roadways, but various design features can make shared lanes more compatible with bicycling, such as good pavement quality; adequate sight distances; roadway designs that encourage lower speeds; and bicycle-compatible drainage grates, bridge expansion joints, and railroad crossings. Appropriate signal timing and detector systems that respond to bicycles also make shared lanes more compatible with bicycling. If such features are not present, improvements or retrofits should be implemented. Other sections of this chapter address bicycle-compatible design features in more detail.

Generally speaking, roadways that carry very low to low volumes of traffic, and may also have traffic typically operating at low speeds, may be suitable as shared lanes in their present condition. Rural roadways with good sight distance that carry low volumes of traffic and operate at speeds of 55 mph (89 km/h) or less may also be suitable as shared lanes in their present condition. Such roads often provide an enjoyable and comfortable bicycling experience with no need for bike lanes or any other special accommodations to be compatible with bicycling. If they provide a route for continuous travel, these roads can also be used as an alternative to busier highways or streets. For example, a narrow and curving rural road with low traffic volumes can be a very suitable and popular bicycling route, and may be preferable for some bicyclists as compared to a high-speed, high-volume highway with good geometrics and shoulders—as long as the road serves as a convenient through route to the desired destinations. Outside urban areas, these types of roads may comprise a high percentage of popular or designated bicycle routes, and may be appropriate for designation as a local, state-level, or U.S. Bicycle Route.

Various geometric and operational factors affect the comfort level of bicyclists in shared lanes. Models have been developed that quantify how various geometric and operational factors affect bicyclists. The Bicycle LOS model includes factors such as roadway lane width, lane use, traffic speed and volume, on-street parking, and surface condition in order to grade a roadway's relative comfort for bicyclists. This model can be used to determine to what extent shared lanes will adequately accommodate bicyclists given roadway conditions that exist today, or that are forecasted in the future. See Chapter 2 for a more detailed description of the use and application of the Bicycle LOS model.

### 4.3.1 Shared Lanes on Major Roadways (Wide Curb/Outside Lanes)

Lane widths of 13 ft (4.0 m) or less make it likely that most motor vehicles will encroach at least part way into the next lane to pass a bicyclist with an adequate and comfortable clearance (usually 3 ft [0.9 m] or more depending on the speed of the passing vehicle). Lane widths that are 14 ft (4.3 m) or greater allow motorists to pass bicyclists without encroaching into the adjacent lane. The usable lane width is normally measured from the center of the edge line to the center of the traffic lane line, or from the longitudinal joint of the gutter pan to the center of the lane line. The gutter should not be included in the measurement as usable width, as bicyclists will typically ride well to the left of the joint.

On sections of roadway where bicyclists may need more maneuvering space, the outside lane may be marked at 15 ft (4.6 m) wide. This width may be appropriate on sections with steep grades or on sections where drainage grates, raised delineators, or on-street parking effectively reduces the usable width. However, lane widths in extremely congested areas that continuously exceed 16 ft (4.9 m) may encourage the undesirable operation of two motor vehicles side by side. The provision of wide outside lanes should also be weighed against the likelihood that motorists will travel faster in them and that heavy vehicles (where present) will prefer them to inside lanes, resulting in decreased level of service for bicyclists and pedestrians. When sufficient width is available to provide bike lanes or paved shoulders, they are the preferred facilities on major roadways. Roadways with shared lanes narrower than 14 ft (4.3 m) may still be designated for bicycles with bicycle guide signs and/or shared-lane markings, per the guidance in this chapter.

### 4.3.2 Signs for Shared Roadways

A “Share the Road” sign assembly (W11-1 + W16-1P) (see Figure 4-1) is intended to alert motorists that bicyclists may be encountered and that they should be mindful and respectful of bicyclists (3). However, the sign is not a substitute for appropriate geometric design measures that can improve the quality of service for bicyclists. The sign should not be used to address reported traffic operational issues, as the addition of this warning sign will not significantly improve bicycling conditions. The sign may be used under certain limited conditions, such as at the end of a bike lane, or where a shared use path ends and bicyclists must share a lane with other traffic. The sign may also be used in work zones, where bicyclists may need to share a narrower space than usual on a traveled way. This sign should not be used to indicate a bike route. A fluorescent yellow-green background can be used for this sign.

Another sign that may be used in shared lane conditions is the “BICYCLES MAY USE FULL LANE” sign (R4-11) (see Figure 4-2) (3). This sign may be used on roadways without bike lanes or usable shoulders where travel lanes are too narrow for bicyclists and motorists to operate side by side within a lane.



Figure 4-1. “Share the Road” Sign Assembly



Figure 4-2. Bicycles “May Use Full Lane” Sign



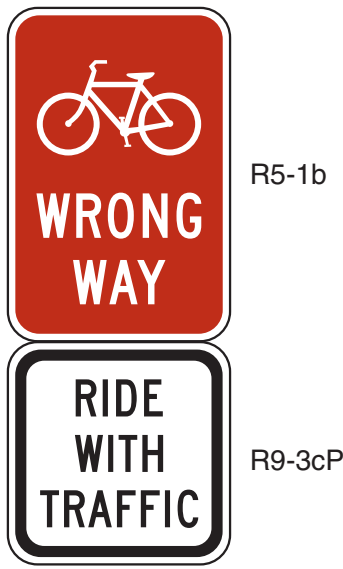


Figure 4-3. “Wrong Way—Ride with Traffic” Sign Assembly

For locations where wrong-way riding by bicyclists is frequently observed, the MUTCD (3) provides a bicycle “WRONG WAY SIGN” and “RIDE WITH TRAFFIC” plaque (R5-1b and R9-3cP) that can be mounted back-to-back with other roadway signs (such as parking signs) to reduce sign clutter and minimize visibility to other traffic (see Figure 4-3). This sign assembly can be used in shared lane situations, as well as on streets with bike lanes and paved shoulders.

#### 4.4 MARKED SHARED LANES

In situations where it is desirable to provide a higher level of guidance to bicyclists and motorists, shared lanes may be marked with a pavement marking symbol (see Figure 4-4). The symbol, known as the shared-lane marking, is useful in locations where there is insufficient width to provide bike lanes. The marking also alerts road users to the lateral position bicyclists are likely to occupy within the traveled way, therefore encouraging safer passing practices (including changing lanes, where needed). Shared-lane markings may also be used to reduce the incidence of wrong-way bicycling.

Shared-lane markings may be applicable in the following scenarios:

- In a shared lane with adjacent on-street parallel parking, to assist bicyclists with lateral positioning that reduces the chance of a bicyclist impacting the open door of a parked vehicle.
- On wide outside lanes, to indicate more appropriate positioning away from the curb or the edge of the traveled way.
- On a section of roadway with shared lanes, to fill a gap between two sections of roadway that have bike lanes, or to fill a gap between a shared use path and a nearby destination, or other similar connections.
- On a section of roadway where the lanes are too narrow for a bicyclist and motorist to travel side-by-side in the lane.
- On a steep downgrade section of roadway where there is room for only one bike lane. In these situations, a bike lane should be used on the upgrade section due to the bicyclist’s slower operating speed moving uphill.
- It may be appropriate to use shared-lane markings, rather than a bike lane, on a steep downgrade section of roadway where bicycle speeds are high and parking is present, since bicyclists may choose not to use a bike lane when traveling at high speeds adjacent to parked vehicles.
- At multilane intersections where there is insufficient width to provide a bike lane, and conflicts make it desirable to indicate proper positioning.

- At transit stops, to provide visual cues to motorists and bicyclists on the correct path to follow.
- Shared-lane markings are not appropriate on paved shoulders or in bike lanes, and should not be used on roadways that have a speed limit above 35 mph (50 km/h). Shared-lane markings should be placed immediately after an intersection and spaced at intervals not greater than 250 ft (76 m) thereafter.
- Shared-lane markings should be marked on an alignment that represents a practical path of bicycle travel under typical conditions. For some streets, this may be the center of a shared travel lane. On a one-way street designated as a bicycle route, where the bicycle route makes a left turn, it may be appropriate to place shared-lane markings on both the outside right and left lanes of the street.

The following provides guidance from the MUTCD (3) on shared-lane marking placement (all values given are to the center of the marking):

- On streets with on-street parallel parking, shared-lane markings should be placed at least 11 ft (3.4 m) from the face of curb, or edge of the traveled way where there is no curb (see Figure 4-5).
- On streets without on-street parallel parking, shared-lane markings should be placed at least 4 ft (1.2 m) from the face of curb, or edge of the traveled way where there is no curb (see Figure 4-6).
- The shared-lane markings can be placed farther into the lane than the minimum distance shown above, where appropriate, such as where the lane is too narrow for side-by-side operation of a bicycle and a motor vehicle. The MUTCD (3) contains further guidance on shared-lane markings.

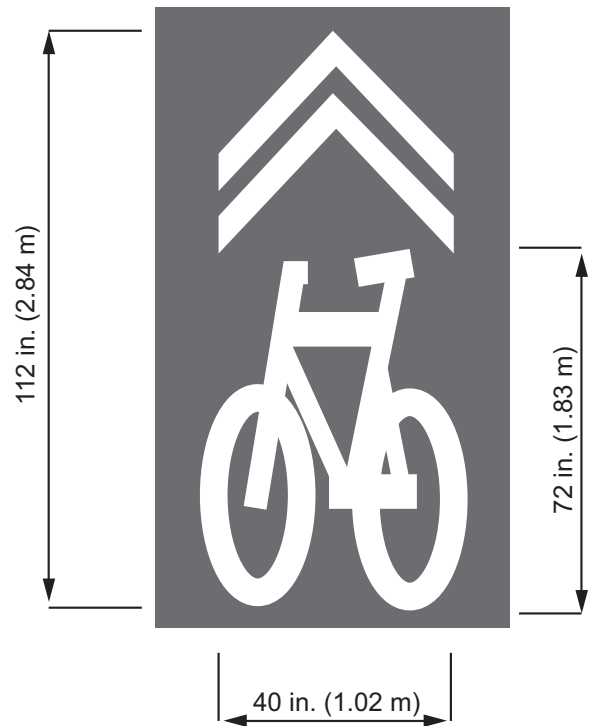


Figure 4-4. Shared-Lane Marking

Generated by Dan Maciel from City of Placerville on Jun 27, 2019 at 4:20:16 PM



Time of Day: 6:00 to 18:59  
 Dates: 6/20/2019 to 6/24/2019

Site: 1700 Broadway Drive, WB

## Overall Summary

Total Days of Data: 5

Speed Limit: 40

Average Speed: 33.6

50th Percentile Speed: 35.89

85th Percentile Speed: 41.65

Pace Speed Range: 32-42

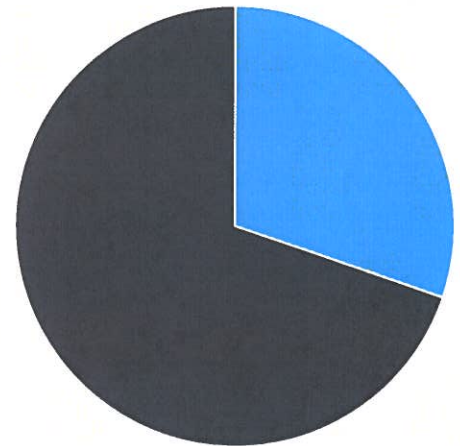
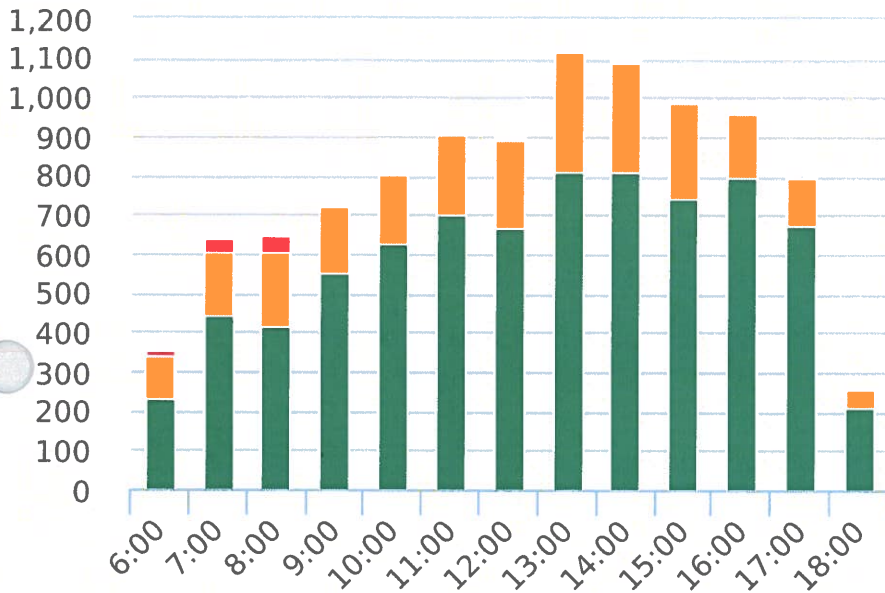
Minimum Speed: 5

Maximum Speed: 63

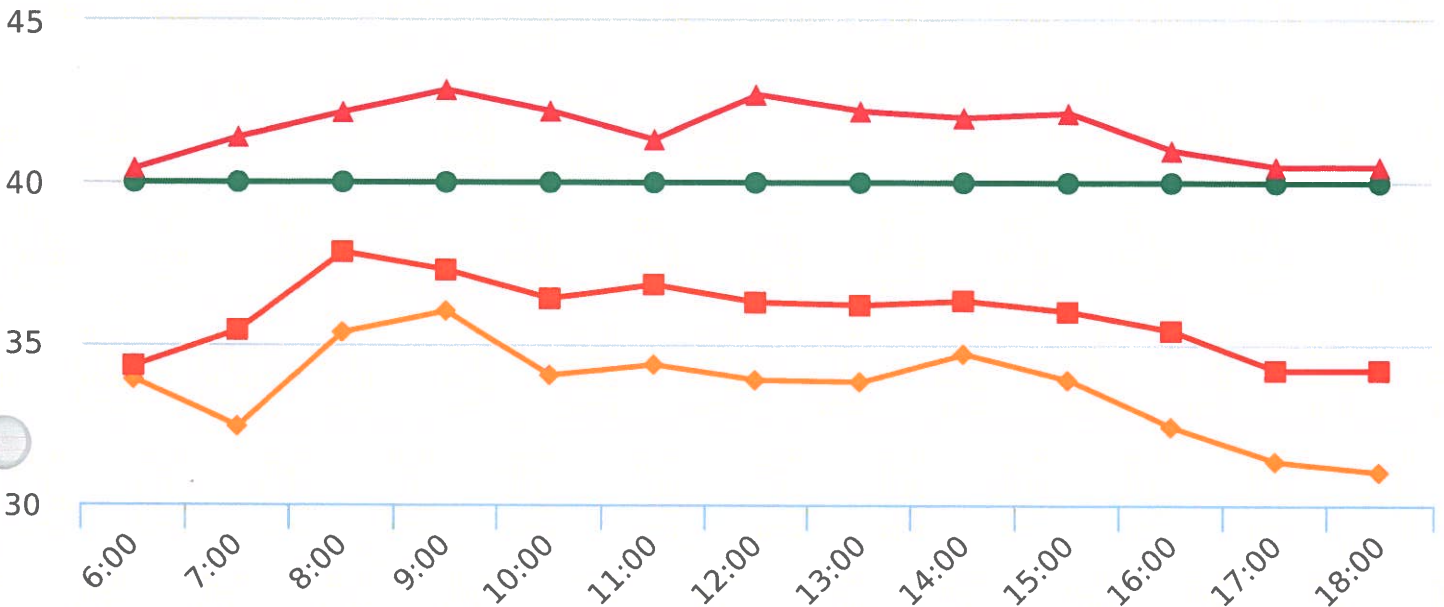
Display Status: Display Off

Average Volume per Day: 2048.0

Total Volume: 10240



■ Violators   
 ■ Inside Threshold   
 ■ Compliant   
 ■ Vehicles Slowed   
 ■ Other





Time of Day: 6:00 to 18:59

Site: 1700 Broadway Drive, WB

Dates: 6/20/2019 to 6/24/2019

Hours	Sign Mode	Speed Limit	Total # Vehicles	Total # Violator	% Violator	Avg # Vehicles	Avg # Violator	Min Speed	Max Speed	Avg Speed	50% Speed	85% Speed	Sign Effectiveness
6:00	Display Off	30, 40	354	12	3.4 %	70.8	2.4	5	52	33.9	34.3	40.4	29.9 %
7:00	Display Off	30, 40	644	37	5.7 %	128.8	7.4	5	53	32.4	35.4	41.4	31.8 %
8:00	Display Off	30, 40	649	40	6.2 %	129.8	8.0	5	63	35.3	37.8	42.2	32.0 %
9:00	Display Off	40	726	0	0.0 %	145.2	0.0	5	50	36.0	37.3	42.9	30.7 %
10:00	Display Off	40	814	7	0.9 %	162.8	1.4	5	55	34.0	36.4	42.2	28.6 %
11:00	Display Off	40	914	6	0.7 %	182.8	1.2	5	53	34.3	36.8	41.3	28.0 %
12:00	Display Off	40	897	6	0.7 %	179.4	1.2	5	56	33.9	36.3	42.7	27.7 %
13:00	Display Off	40	1123	4	0.4 %	224.6	0.8	5	53	33.8	36.2	42.2	29.6 %
14:00	Display Off	40	1099	7	0.6 %	219.8	1.4	5	59	34.7	36.3	42.0	30.8 %
15:00	Display Off	40	993	7	0.7 %	198.6	1.4	5	53	33.9	36.0	42.1	28.7 %
16:00	Display Off	40	962	4	0.4 %	192.4	0.8	5	53	32.4	35.4	41.0	31.4 %
17:00	Display Off	40	805	6	0.7 %	161.0	1.2	5	52	31.3	34.2	40.5	32.7 %
18:00	Display Off	40	260	2	0.8 %	52.0	0.4	5	51	31.0	34.2	40.5	30.7 %
<b>Total Vol/</b>	<b>Avg Speeds</b>		10240	138	1.6 %	2048.0	27.6	5	63	33.6	35.9	41.6	30.2 %
<b>Total/Avg</b>	<b>w/o Feedback</b>		10240	138	1.6 %	2048.0	27.6	5	63	33.6	35.9	41.6	30.2 %
<b>Total/Avg</b>	<b>w/ Feedback</b>		0	0	0.0 %	0.0	0.0	0	0	0.0	0.0	0.0	0.0 %

City of Placerville  
Engineering and Traffic Survey Summary

Street: Broadway Speed Data Collection By: Police Department

Limits: Broadway Analysis By: Melissa McConnell, P.E.

800 ft e/o Smith Flat to Point View Date: 6/20/2019 - 6/24/2019

Factors: Dry, Clear Direction: Westbound

A. Prevailing Speed Data

Location of Survey: 1700 Broadway - westbound direction only

85th Percentile: WB 41.65 mph EB N/A

10 MPH Pace: WB 32-42 mph EB N/A

Percent in Pace: WB EB N/A

Posted Speed Limit: 40 mph

B. Collision History

Date Range Covered: 1/1/2010 To: 12/31/2018 9.0 Years

Total Collisions: 6

Collision Rate (Acc/MVM): 1.39

C. Traffic Factors

Average Daily Traffic: 2,100

Length of Segment (feet): 3,300

Lane Configuration: One lane in each direction

Street Classification: Minor Arterial

D. Conditions Not Readily Apparent To Drivers:

Conditions: Road geometry changing to include new bicycle and pedestrian facilities.

Roadway Geometrics: 2-11 ft lanes, narrow unpaved shoulders

Comments: Upper Broadway Bike Lanes and Pedestrian Connection Project will change character and the roadway geometry. See attached memo.

E. Adjacent Land Use Low density residential, business/commercial

Posted Speed Limit: 40 mph

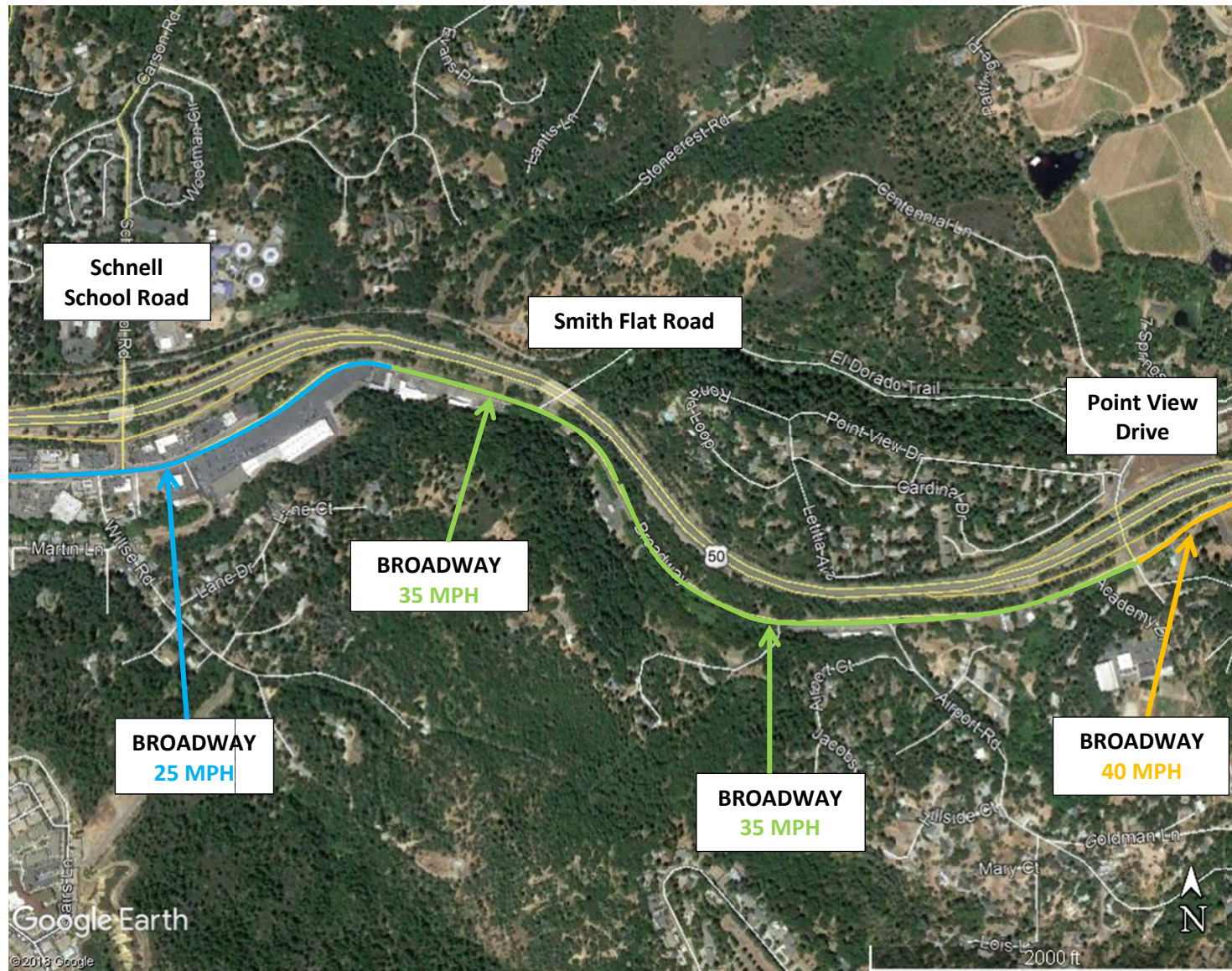
Speed Limit Change? Yes

Revised Speed Limit: 35 mph

Approved and Authorized for release by the City of Placerville Engineering Department

Melissa McConnell  
Signature

8/2/2019  
Date



**Exhibit 2 – Proposed Speed Limit Reduction**

**9-2-1: SPEED RESTRICTIONS:**

Every person operating a vehicle on any street of the city shall operate the same in a careful and prudent manner and at a rate of speed not greater than is reasonable and proper, having regard to the traffic and use of the street, and no person shall operate a vehicle on any street at a rate of speed so as to endanger the life or limb of any person or the safety of any property. Speed restrictions shall be as follows: (Ord. 586, 6-21-1920)

No person shall drive a vehicle at a rate of speed in excess of twenty five (25) miles per hour, provided that in the event the territory contiguous to the street being traveled is closely built up, the speed shall not exceed twenty five (25) miles per hour. (Ord. 586, 6-21-1920; amd. 1962 Code)

In the business district the speed limit shall be fifteen (15) miles per hour. (Ord. 907, 5-28-1964)

Upon approaching a railway crossing, or approaching or traversing a street intersection, the speed limit shall be fifteen (15) miles per hour. (Ord. 586, 6-21-1920)

The following speed limits shall be established on the following streets in the city:

<b>Street</b>	<b>From/To</b>	<b>Speed Limit (mph)</b>
Bee Street	Coloma Street to Canal Street	30
Benham Street	Pacific Street to Big Cut Road	25
Broadway	Mosquito Road to a point 800 feet west of Smith Flat Road	25
	800 feet west of Smith Flat Road to <del>a point 800 feet east of Smith Flat Road</del> Point View Drive	35
Point View Drive	<del>800 feet east of Smith Flat Road</del> to the easterly city limits	40
Canal Street	Westerly city limits to Highway 50	30
Carson Road	Broadway to Schnell School Road	30
Cedar Ravine Street	Main Street to southerly city limits	30
Chapel Street	Pacific Street to Chamberlain Street	15
Cold Springs Road	Placerville Drive to westerly city limits	35
Combella Road	Coloma Street to Middletown Road	30
Fair Lane	Placerville Drive to Ray Lawyer Drive	35
Forni Road	Lo Hi Way easterly to city limits	35
Grandview Street	Clay Street to Simon Drive	35
Green Valley Road	Placerville Drive to westerly city limits	30
Main Street	Forni Road to Broadway	25
Mallard Lane	Green Valley Road to city limits	30
Morrene Drive	Hocking Street to Kenneth Court	25

Mosquito Road	Broadway to Dimity Lane	30
	Dimity Lane to northerly city limits	35
Oak Terrace	Northridge Drive to a point 450 feet east of Edgewood Drive	25
	Coloma Street to a point 450 feet east of Edgewood Drive	15
Pacific Street	Sacramento Street to Cedar Ravine Street	30
Placerville Drive	West connection with Highway 50 to east connection with Highway 50	35
Ray Lawyer Drive	Placerville Drive to Fair Lane	35
Schnell School Road	Broadway to Carson Road	30
Smith Flat Road	Broadway to city limits	25
Spring Street	Coloma Street to Bedford Avenue	30
Tunnel Street	Spring Street to its northerly terminus	30
Turner Street	Main Street to Corker Street	30
Washington Street	Spanish Ravine to Corker Street	25
	Corker Street to Cedar Ravine Street	30
Wiltse Road	Broadway to Lumsden Park entrance	25

(Ord. 1475, 2-26-1991; amd. Ord. 1482, 8-27-1991; Ord. 1489, 3-10-1992; Ord. 1493, 7-14-1992; Ord. 1548, 5-12-1998; Ord. 1550, 10-13-1998; Ord. 1563, 1-11-2000; Ord. 1588, 10-8-2002)

The speed limits herein set forth shall be effective when appropriate signs giving notice thereof are erected upon the streets and shall not thereafter be revised except upon the basis of an engineering and traffic survey. (Ord. 1116, 4-26-1977)





## INTER-OFFICE MEMORANDUM

TO: Rebecca Neves, P.E., City Engineer

FROM: Melissa McConnell, P.E., Associate Civil Engineer

DATE: March 22, 2021

SUBJECT: Upper Broadway Bike Lanes (Including Upper Broadway Pedestrian Connection) Project – CIP #41508 – Proposed Speed Limit Reduction  
*Supplemental Memo*

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### **Engineering and Traffic Survey**

On March 5, 2021, the Engineering Department conducted a follow-up speed survey on Broadway to assess post-construction vehicular speeds on Broadway. The data was collected at the location of 1760 Broadway to evaluate the proposed speed limit reduction for the segment of Broadway from 800 feet east of Smith Flat Road to Point View Drive.

Eastbound and westbound speeds were measured until a sample of 100 vehicles in each direction was collected. The speed survey for this sample revealed an 85<sup>th</sup>-percentile speed of 41 mph in the westbound direction and 43 mph in the eastbound direction. This results in a combined 85<sup>th</sup>-percentile speed of 42 mph for this segment of Broadway.

### **Recommendations**

According to the California Manual for Setting Speed Limits, when a speed limit is to be posted, it shall be established at the nearest 5 mph increment. For the 42 mph 85<sup>th</sup>-percentile speed, the speed limit would be rounded down to 40 mph. However, a 5 mph reduction may be applied when justified in a documented Engineering & Traffic Survey (E&TS). As mentioned in the E&TS Memo prepared by the Engineering Department on December 15, 2020, the reduced speed limit of 35 mph is justified due to the fundamental change in character of the roadway, user safety, and change in type of usage related to the new bicycle and pedestrian facilities.

### **List of Attachments:**

- A. Engineering and Traffic Survey Sheets

**CITY OF PLACERVILLE**  
TRAFFIC AND ENGINEERING SURVEY

**Location:** Broadway Westbound      **Limits:** 800 ft east of Smith Flat to Point View  
**Survey Location:** Near 1760 Broadway  
**Recorder:** Melissa McConnell, PE      **Begin**      **End**      **Weather**      Sunny, 62  
**Date:** 3/5/2021      3:50 PM      5:04 PM

	<u>MPH</u>	<u># Veh's</u>	<u>% of Total</u>	<u>Accum. Total</u>	
	55+	0	0.0	100.0	
	54	0	0.0	100.0	
1	53	1	1.0	100.0	
	52	0	0.0	99.0	
	51	0	0.0	99.0	
	50	1	1.0	99.0	
	49	3	2.9	98.0	
	48	1	1.0	95.1	
	47	0	0.0	94.1	
	46	2	2.0	94.1	
21	45	2	2.0	92.2	
	44	1	1.0	90.2	
	43	2	2.0	89.2	
	42	3	2.9	87.3	
	41	6	5.9	84.3	<b>85TH %</b>
	40	2	2.0	78.4	
	39	9	8.8	76.5	
	38	4	3.9	67.6	
	37	6	5.9	63.7	
	36	7	6.9	57.8	
58	35	6	5.9	51.0	
	34	9	8.8	45.1	<b>50TH %</b>
	33	5	4.9	36.3	
	32	6	5.9	31.4	
	31	4	3.9	25.5	
	30	5	4.9	21.6	
	29	5	4.9	16.7	
	28	2	2.0	11.8	
	27	5	4.9	9.8	
	26	1	1.0	4.9	
	25	0	0.0	3.9	
20	24	0	0.0	3.9	
	23	0	0.0	3.9	
	22	1	1.0	3.9	
	21	1	1.0	2.9	
	20	1	1.0	2.0	
	19	1	1.0	1.0	
	18	0	0.0	0.0	
2	17	0	0.0	0.0	
	16	0	0.0	0.0	
	15-	0	0.0	0.0	
	Total:	102			

Accident History:

Conditions not readily apparent to the driver:  
High pedestrian and bicycle activity.

**CITY OF PLACERVILLE**  
TRAFFIC AND ENGINEERING SURVEY

**Location:** Broadway - Eastbound      **Limits:** 800 ft East of Smith Flat to Point View  
**Survey Location:** Near 1760 Broadway  
**Recorder:** Melissa McConnell, PE      **Begin**      **End**      **Weather**      Clear, 62  
**Date:** 3/5/2021      3:50 PM      4:41 PM

	<u>MPH</u>	<u># Veh's</u>	<u>% of Total</u>	<u>Accum. Total</u>	
	55+	0	0.0	100.0	
	54	0	0.0	100.0	
0	53	0	0.0	100.0	
	52	0	0.0	100.0	
	51	0	0.0	100.0	
	50	0	0.0	100.0	
	49	1	1.0	100.0	
	48	0	0.0	99.0	
	47	1	1.0	99.0	
	46	2	2.0	98.0	
41	45	8	8.0	96.0	
	44	7	7.0	88.0	
	<b>43</b>	<b>8</b>	<b>8.0</b>	<b>81.0</b>	<b>85TH %</b>
	42	6	6.0	73.0	
	41	8	8.0	67.0	
	40	6	6.0	59.0	
	39	5	5.0	53.0	
	<b>38</b>	<b>4</b>	<b>4.0</b>	<b>48.0</b>	<b>50TH %</b>
	37	5	5.0	44.0	
	36	4	4.0	39.0	
53	35	5	5.0	35.0	
	34	10	10.0	30.0	
	33	4	4.0	20.0	
	32	4	4.0	16.0	
	31	6	6.0	12.0	
	30	1	1.0	6.0	
	29	2	2.0	5.0	
	28	0	0.0	3.0	
	27	0	0.0	3.0	
	26	0	0.0	3.0	
	25	1	1.0	3.0	
6	24	2	2.0	2.0	
	23	0	0.0	0.0	
	22	0	0.0	0.0	
	21	0	0.0	0.0	
	20	0	0.0	0.0	
	19	0	0.0	0.0	
	18	0	0.0	0.0	
0	17	0	0.0	0.0	
	16	0	0.0	0.0	
	15-	0	0.0	0.0	
	Total:	100			

Accident History:

Conditions not readily apparent to the driver:  
High pedestrian and bicycle activity.