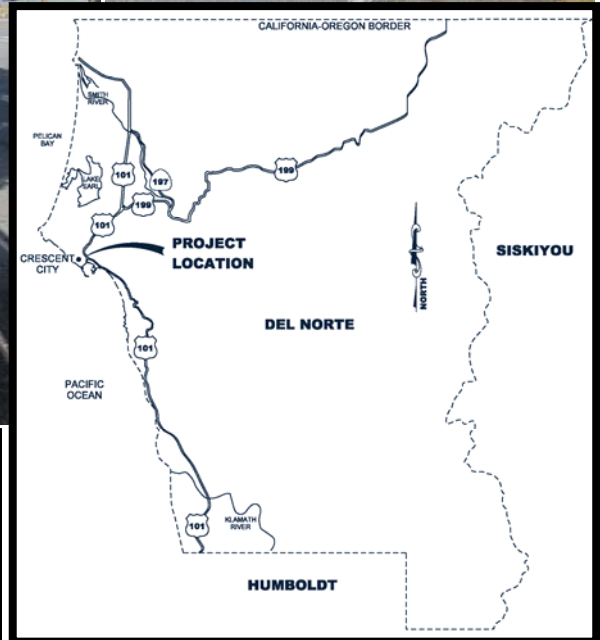




# Elk Valley Road Multimodal Corridor Plan

01-DN-EVR  
PM 0.0-4.5  
May 2017



In Del Norte County, along Elk Valley Road in the area in and around  
Crescent City, California  
PM 0.0 to 4.5

*I have reviewed the right of way information contained in this Draft Project Study Report and the R/W Data Sheet attached hereto, and find the data to be complete, current and accurate:*

*Brian Stephenson*

Brian Stephenson, Dokken Engineering, Right of Way

APPROVAL RECOMMENDED:

\_\_\_\_\_  
Tamera Leighton, Executive Director  
Del Norte Local Transportation Commission

APPROVED:

\_\_\_\_\_  
Heidi Kunstal, Director  
Community Development Department

\_\_\_\_\_  
DATE

This Multimodal Corridor Plan has been prepared under the direction of the following Registered Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



*Brian R. Stephenson*

REGISTERED CIVIL ENGINEER

5/15/2017

DATE

## Table of Contents

1.	Introduction.....	1
2.	Background.....	1
3.	Purpose and Need Statement .....	2
4.	Deficiencies.....	2
5.	Corridor and System Coordination .....	8
6.	Alternatives .....	8
7.	Alternatives comparison matrix.....	13
8.	Alternatives Cost estimates.....	14
9.	Community Involvement .....	16
10.	Environmental Determination/Document.....	17
11.	Funding .....	17
12.	Schedule.....	17
13.	FHWA Coordination.....	17
14.	Development Team.....	17
15.	Project Reviews .....	18

### ATTACHMENTS:

- A Project Location Map
- B Alternatives Exhibit's
- C Alternatives Cost Estimates
- D Environmental Constraints Overview Report
- E Existing Right of Way Records Sheet
- F Existing Conditions Report
- G Public Meeting Records

## 1. INTRODUCTION

Brief Project Description:

The Elk Valley Road Multimodal Corridor Plan proposes to improve safety and address traffic crash rate issues. The Multimodal Corridor plan would include improvements to pedestrian and bicycle facilities, lateral and vertical sight distance, intersection turn pockets, a roundabout and triangular intersection improvements.

See the cost estimates for specific work items included in each alternative.

<b>Project Limits</b> (Dist., Co., Rte., PM)	01-DN-EVR-PM 0.0-4.5
<b>Number of Alternatives:</b>	6
<b>Programmed or Proposed Capital Construction Costs</b>	Varies
<b>Programmed or Proposed Capital Right of Way Costs:</b>	Varies
<b>Programmed or Proposed Support Costs:</b>	Varies
<b>Funding Source:</b>	TBD
<b>Type of Facility</b> (conventional, expressway, freeway):	Conventional
<b>Number of Structures:</b>	1
<b>Anticipated Environmental Determination/Document</b>	IS/MND/CE
<b>Legal Description</b>	In Del Norte County, along Elk Valley Road from Hwy 101 to Parkway Drive, Crescent City, California.

## 2. BACKGROUND

Elk Valley Road is a 4.5 mile stretch of roadway between US Highway 101 (US-101) and Parkway Drive which links to US-199. Elk Valley Road currently consists of a three lane urban cross section in its urban section from US 101 to Howland Hill Road, and a two, 11' lane rural cross section between Howland Hill Road and Parkway Drive.

This roadway serves residential neighborhoods, the Elk Valley Casino, the North Operations Center for the National Park, a gravel quarry, and is the main off haul route for the county solid waste



transfer station. Elk Valley Road is an important element of the regional bicycle network, but does not contain a safe multimodal profile. The Elk Valley Road Multimodal Corridor Plan is a product of the Del Norte Local Transportation Commission 2016-17 Overall Work Program. Six alternatives have been evaluated to increase multimodal traffic safety.

### **3. PURPOSE AND NEED STATEMENT**

#### **Need:**

Improvements along Elk Valley Road are needed to address safety and provide for multimodal travel. The existing corridor has an accident rate higher than the local, county and state averages for similar roadways. It is not multimodal.

#### **Purpose:**

The purpose of the Elk Valley Road Multimodal Corridor Plan is to improve safety for all users (motorists, bicyclists, transit passengers, and pedestrians) and to enhance non-motorized travel along and/or across Elk Valley Road in the unimproved zones between the urban Crescent City segment and the northerly rural roadway segment which connects with Parkway Drive.

#### Other Goals and Objectives

- Provide a paved shoulder for safe bicycle and pedestrian use.
- Identify accident rates at intersections.
- Identify horizontal and vertical sight distance deficiencies along the existing corridor.
- Identify existing environmental constraints along the corridor.
- Identify existing Right of Way constraints along the corridor.

### **4. DEFICIENCIES**

The existing alignment was compared to the December 2016 version of the Caltrans Highway Design Manual. There are geometric deficiencies at four locations along the Elk Valley Road corridor. Two vertical curves must be corrected between Howland Hill Road and Aubell Lane to comply with the minimum vertical curve stopping sight distance required by the Caltrans Highway Design Manual. Two horizontal curves near Mayas Lane and near Parkway Drive do not offer the minimum corner sight distant for the posted speed limit of 45 mph.

There are lane standard width and non-motorized facility deficiencies along the current corridor between Howland Hill Road and Parkway Drive. The existing lane width is 11' with no paved shoulder. This does not characterize a multimodal corridor. Improvements to be made will require lane widening to the 12' standard and paved shoulder widening to 4' for safe bike and pedestrian traffic.

At numerous intersections, stopping sight distance and corner sight distances are below the standards. Increasing the road width will address the bulk of the intersections with residential driveways. For the busier roadway intersections, additional measure must be taken, such as adding left turn pockets.

## **Collison Data**

Intersection traffic volumes were monitored on Friday, October 21, 2016 at both AM and PM peak hour period. Roadway traffic volumes were conducted from Friday, October 21 through Saturday, October, 22<sup>nd</sup> 2016 on a northerly and southerly portion of the rural segment of the corridor. The LOS was evaluated as a B, signifying no increase in capacity is required for this roadway. One traffic generator observed is the Elk Valley Casino, focusing on Howland Hill Road as a busy intersection in comparison to the other intersections along Elk Valley Road.

Historical crash data for Elk Valley Road over the last 10 years was gathered using the State Wide Integrated Traffic Records System (SWITRS). Approximately 2/3 of the accidents did not result in injury. Table 1 shown below summarizes this data. More details and an exhibit showing the segments can be found in the Existing Conditions Report Attachment F. Table 2 details the crash type. As shown in Table 3, the crash summary by primary collision factor, improper turning movements totaled a third of the crashes, implying left turn pockets, sight distance improvements and shoulder widening would be beneficial.

The crash rate for the urban segment of Elk Valley Road, between US 101 and Howland Hill Road, is similar to the State and County wide averages for similar roads. The crash rates for the rural segment of Elk Valley Road are higher than State and County averages, in collisions per million vehicle miles (mvm), when compared to similar roads. The rural segment of Elk Valley Road should be the focus of improvements to address safety.

Supplemental information can be found in Attachment F, Elk Valley Road Existing Conditions Report, along with an accident summary table for each intersection.

**Table 1: Elk Valley Road - Crash Summary by Segment**

October 1, 2006 to October 1, 2016

Segment	Total Crashes	Length of PM Peak Hour 2-way Traffic Segment (miles)	Crashes per mile per Vehicle	Total PM Peak Hour		Crash Severity			Bicyclist Involved in Crash
				Intersection Volume	Crashes per Vehicle	Fatal	Injury	Property Damage Only	
At US 101	6			1368	0.004	0	3	3	0
- between	12	0.9	420	0.032		0	8	4	1
State Street	5			468	0.011	0	0	5	0
- between	2	0.2	487	0.021		0	1	1	2
At Howland Hill Drive	12			474	0.025	0	2	10	0
- between	4	0.4	170	0.059		0	2	2	0
At Norris Avenue/Harbor View Drive	9			254	0.035	0	3	6	0
- between	3	0.6	203	0.025		0	1	2	0
At Aubell Lane	1			199	0.005	0	0	1	0
- between	41	2	187	0.110		0	13	28	1
Cooke Street	4			179	0.022	0	1	3	0
- between	1	0.4	154	0.016		0	0	1	0
At Elk Valley Cross Road/Parkway	9			241	0.037	0	3	6	0
<b>Total</b>	<b>109</b>					<b>0</b>	<b>37</b>	<b>72</b>	<b>4</b>

Note: Collisions within 200 feet of an intersection are included in the total for the intersection.

Note: There were no reported crashes involving pedestrians.

Source: LSC Transportation Consultants INC., California Highway Patrol - Statewide Integrated Traffic Records System (SWITRS)

**Table 2 : Elk Valley Road - Crash Type**

October 1,2006 to October 1, 2016

Segment	Total Crashes	Crash Type								
		Head-On	Sideswipe	Rear End	Broadside	Hit Object	Overtuned	Vehicle/ Pedestrian	Other	Not Stated
At US 101	6	0	1	3	1	0	0	1	0	0
- between	12	0	1	2	2	4	1	0	1	1
State Street	5	0	1	1	1	1	1	0	0	0
- between	2	1	0	0	1	0	0	0	0	0
At Howland Hill Drive	12	0	2	1	7	2	0	0	0	0
- between	4	0	0	1	0	2	1	0	0	0
At Norris Avenue/Harbor View Drive	9	0	0	3	2	4	0	0	0	0
- between	3	0	0	2	0	1	0	0	0	0
At Aubell Lane	1	0	0	0	0	0	0	0	1	0
- between	41	1	2	1	2	32	0	0	3	0
Cooke Street	4	0	1	1	0	2	0	0	0	0
- between	1	0	1	0	0	0	0	0	0	0
At Elk Valley Cross Road/Parkway Drive	9	1	0	1	1	5	1	0	0	0
<b>Total</b>	<b>109</b>	<b>3</b>	<b>9</b>	<b>16</b>	<b>17</b>	<b>53</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>1</b>
<b>Percent of Total</b>		<b>3%</b>	<b>8%</b>	<b>15%</b>	<b>16%</b>	<b>48%</b>	<b>3%</b>	<b>1%</b>	<b>5%</b>	<b>1%</b>

Note: Collisions within 200 feet of an intersection are included in the total for the intersection.

Source: LSC Transportation Consultants INC., California Highway Patrol - Statewide Integrated Traffic Records System (SWITRS)



**Table 3: Elk Valley Road - Primary Collision Factor**

October 1, 2006 to October 1, 2016

Segment	Total Collisions	Primary Collision Factor													
		Alcohol or Drugs	Unsafe Speed	Wrong Side of Road	Improper Passing	Improper Turning	Right of Way	Traffic Signals and Signs	Other Equipment	Other Hazardous Violation	Other Than Driver	Unsafe Starting or Backing	Unknown	Not	
At US 101	6	1	1	0	0	2	0	0	0	0	0	0	1	1	0
- between	12	2	1	0	0	5	2	0	0	0	0	2	0	0	0
State Street	5	0	2	0	0	1	0	1	0	0	0	0	0	0	1
- between	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0
At Howland Hill Drive	12	2	2	0	0	0	8	0	0	0	0	0	0	0	0
- between	4	0	2	0	0	2	0	0	0	0	0	0	0	0	0
At Norris Avenue/Harbor View Drive	9	1	2	0	0	2	2	0	1	0	0	0	0	1	0
- between	3	0	2	0	0	1	0	0	0	0	0	0	0	0	0
At Aubell Lane	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
- between	41	8	6	3	1	18	1	0	0	0	4	0	0	0	0
Cooke Street	4	1	1	0	0	1	0	0	0	0	0	1	0	0	0
- between	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
At Elk Valley Cross Road/Parkway Drive	9	1	2	0	0	4	2	0	0	0	0	0	0	0	0
<b>Total</b>	<b>109</b>	<b>16</b>	<b>21</b>	<b>3</b>	<b>1</b>	<b>37</b>	<b>15</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>
<b>Percent of Total</b>		<b>15%</b>	<b>19%</b>	<b>3%</b>	<b>1%</b>	<b>33%</b>	<b>14%</b>	<b>1%</b>	<b>1%</b>	<b>2%</b>	<b>6%</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>

Note: Collisions within 200 feet of an intersection are included in the total for the intersection.

Source: LSC Transportation Consultants INC., California Highway Patrol - Statewide Integrated Traffic Records System (SWITRS)

## Comparison of Traffic Control Options at Elk Valley Road / Howland Hill Road -- Impacts on Traffic Safety

Traffic safety at the key intersection of Elk Valley Road and Howland Hill Road would be impacted by changes in the traffic controls. Table 4 presents an analysis of the existing controls (Stop sign on the Howland Hill Road approach only) in comparison with an all-way stop and with a roundabout. Key results are as follows:

- over the most recent 10 year period, there were a total of 12 crashes at (within 200') of the intersection, of which 2 resulted in injuries and the remaining 10 resulted in property damage only. This corresponds to a rate of 0.583 total crashes per Million Vehicle Movements (MVM) and 0.097 injury or fatal crashes per MVM. In comparison with statewide averages for T intersections in rural areas with side-street Stop controls, the observed rates at this location are 265 percent above statewide average for total crashes, and 49 percent above the statewide average for injury/fatal crashes.
- The California statewide crash rate data indicates that conversion to an all-way Stop sign control would increase the expected total crash rate by 125 percent, and increase the injury/fatal crash rate by 80 percent. This is consistent with other studies that indicate that all-way Stop control results in crashes due to drivers that fail to heed the Stop signs. Crash rates would therefore increase significantly if Stop signs are installed on the Elk Valley Road approaches.
- A recent detailed analysis of crash data for modern U.S. roundabouts yields an estimation equation, as documented in the National Cooperative Highway Research Program's Report 672: Roundabouts – An Informational Guide. Entering the geometrics and volumes for a roundabout at the subject location, the expected annual crashes would be substantially lower than today, for both total crashes and for injury/fatal crashes.
- As shown in the bottom portion of the table, conversion to an **All-Way Stop** control would increase the expected number of crashes over a 10-year period by 15, of which 3 would be injury or fatal crashes.
- Conversion to a **Roundabout** control would reduce the number of crashes from that expected under the current control by 5 total crashes, of which 1 would be an injury or fatal crash.

This analysis clearly depicts the traffic safety benefits of a roundabout, as well as the negative safety impacts of all-way stop control. From a traffic safety perspective, a roundabout would be the optimal modification to this intersection to address the poor existing traffic safety condition.

**Table 4: Elk Valley Rd/Howland Hill Rd Traffic Control Options - Safety Impacts**

Annual Average Daily Traffic	5637
Annual Million Vehicle Movements	2.06

	<u>Crashes</u>	
	Total	Injury or Fatal
Existing (Over 10 Years)	12	2
Crash Rate (Per Million Vehicle Movements)	0.583	0.097
Statewide Avg. for Rural T Intx with Side-Street Stop	0.160	0.065
Ratio of Observed to Statewide Average	3.65	1.49
<b>Annual Expected Crashes</b>		
Existing Side-Street Stop	1.2	0.20
Ratio of All-Way Stop to Side-Street Stop Crash Rate (1)	2.25	1.80
All-Way Stop	2.7	0.48
Roundabout (2)	0.7	0.13
<b>Impact of Traffic Control Change</b>		
<u>Convert to 3-Way Stop</u>		
Change in Crash Rate	125%	141%
Change in Crashes Over 10 Years	15	3
<u>Convert to Roundabout</u>		
Change in Crash Rate	-41%	-33%
Change in Crashes Over 10 Years	-5	-1

Source 1: 2013 Collision Data on California State Highways

Source 2: NCHRP Report 672: Roundabouts - An Informational Guide

## 5. CORRIDOR AND SYSTEM COORDINATION

There are no projects planned along this corridor at this time.

## 6. ALTERNATIVES

Alternatives have been developed for the Multimodal Corridor Plan that include lane and shoulder widening, curb, gutter and sidewalk, intersection

improvements, sight distance improvements, re-striping of urban stretch and no-build. The following description of the alternatives gives location, types and limits of the improvements. Following the alternatives is the planning level cost estimates associated with each alternative that has estimated costs for construction, right of way, environmental mitigation, preliminary engineering, and construction engineering for a total estimated cost.

**Alternative 1: Lane and Shoulder widening from Howland Hill Road to Parkway Drive**

Alternative 1, **Option A** would construct standard lane widths and shoulders along Elk Valley Road from Howland Hill Road to Parkway Drive. The existing roadside utilities and drainage ditch will need to be relocated to construct the standard shoulder widths. A 60-foot wide Right of Way corridor would be secured from Howland Hill Road to Parkway Drive to contain the standard lane shoulders, drainage ditches and utility pole relocations. The 4 foot paved shoulder would be striped and signed as a Class 2 bike lane. The following key project elements will be included as part of the Alternative 1, Option A:

- “**12 foot Standard Lane Widths**” for 3.4 mile stretch on both sides of the corridor between Howland Hill Road and Parkway Drive
- “**Driveway Improvements**” for all current driveways along this corridor up to the right of way limits.

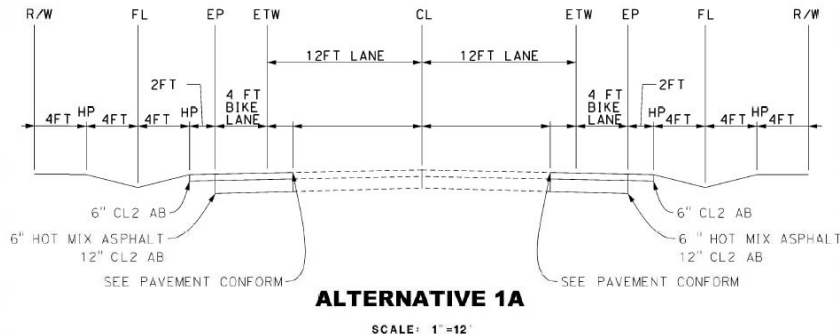


Figure 1 Alternative 1A typical section. See Attachment B for more details.

Alternative 1, **Option B** would keep the existing lane widths as 11 foot, construct a 2 foot buffer along each side of the corridor and widen the shoulder 3 additional feet to sustain a striped separated bike/pedestrian lane. A 60 foot wide Right of Way would be necessary to encompass the new corridor width and roadside elements.

- “**11 foot Lane Widths**” for 3.4 mile stretch on both sides of the corridor between Howland Hill Road and Parkway Drive
- “**Driveway Improvements**” for all current driveways along this corridor up to the right of way limits.

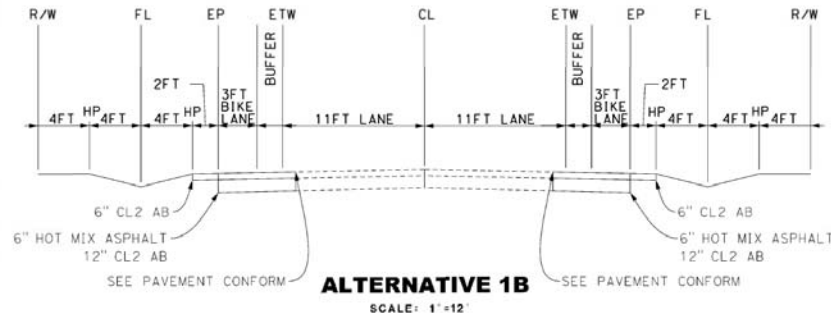


Figure 2 Alt 1B typical section. See Attachment B for more details.

### Alternative 2: Intersection Improvement's

Alternative 2, **Option A** entails the construction of a 135-foot diameter inscribed circle roundabout located at the intersection of Howland Hill Road and Elk Valley Road. The roundabout would require additional Right of Way and utility relocations. The connections to the existing Elk Valley Road would begin at the existing sidewalk on Elk Valley Road and end approximately 250 feet north of the existing intersection. The roundabout would have crosswalks at each approach and provide sidewalks around the perimeter. Low maintenance improvements, such as raised medians, will separate pedestrians from the traffic lane around the roundabout. Local driveways in the footprint of the roundabout would be modified to conform to the new road geometrics. It is anticipated that a building would need to be acquired in the northeast corner of the intersection to allow for the roundabout. See Attachment B, Alternative 2A.

Alternative 2, **Option B** would construct two left turn pockets along with lane and shoulder widening along Elk Valley Road at the intersection of Norris Avenue and Harbor View Drive. The minimum requirements of 250 feet of storage and 540 feet of taper for each turn pocket results in the total length of the project being approximately 2000 feet. The intersection would be improved by constructing the 12 foot left turn pocket and 4 foot of paved shoulders for bike and pedestrian traffic. This option would require the 60 foot of Right of Way acquisition and drainage/utility pole relocation in the footprint of the improvements. See Attachment B, Alternative 2B.

Alternative 2, **Option C** would be the addition of one left turn pocket at Cooke Street. The turn pocket would be 12 foot wide and 250 feet long for storage. With the 540 feet of deceleration and 540 feet of flare on the northerly segment, the total project length is approximately 1500 ft. The improvement would include 4 foot of paved shoulder for bike and pedestrian traffic. A small portion of the southern end of the planned project limits would encroach on two parcels and require right of way acquisition. Utility pole and drainage ditch relocations would be necessary. See Attachment B, Alternative 2C.

Alternative 2, **Option D** would modify the northerly end of Elk Valley Road, which intersects with Parkway Drive. The elimination of the southbound lane on

Elk Valley Road at Parkway Drive will force fast-paced vehicles to slow down before turning left and entering onto Elk Valley Road. The existing roadway from Elk Valley Road to the Parkway Drive/Elk Valley Cross Road intersection would be widened for the southbound traffic entering onto Elk Valley Road from Parkway Drive to have California legal turning radius. Road widening would involve right of way acquisition from the parcel south of the intersection. Within the existing triangular vegetated median area, a new curb and gutter will be constructed along the full perimeter and the existing drainage inlets adjusted to maintain roadway drainage. See Attachment B, Alternative 2D.

### **Alternative 3: Sight Distance Improvements**

Alternative 3, **Option A** would correct all horizontal curves not in compliance with Chapter 200 of the Caltrans Highway Design Manual, latest edition, based on the design speed for Elk Valley Road. Curve 1 on Elk Valley Road, near Mayas Lane, would require clearing and grubbing beyond the edge of shoulder to maintain proper sight distance. Current lateral sight clearance is approximately 13 feet from lane to obstructions. Given the design speed of 55 mph (posted for 45 mph), a minimum lateral sight distance of 26 feet (center of lane to obstruction) is required for this curve.

Elk Valley Curve 2, near Parkway Drive, would require an additional 26 feet of clearance to meet standards for lateral sight clearance. Consultation with the USFWS, along with work restricted to non-breeding season and compensatory mitigation for tree removal could be affected by this clearing and grubbing.

For both curves, temporary ESA fencing, ditch excavation and reseeding would be required. See Attachment B, Alternative 3A/B.

Alternative 3, **Option B** would correct vertical curves along Elk Valley Road between Howland Hill Road and Aubell Lane. Elk Valley Road Vertical Curve 1 is just north of Howland Hill Road. Elk Valley Road Vertical Curve 2 is just south of Aubell Lane. To provide the standard stopping distances required, the roadway in these areas would be regraded to adjust the crest vertical curves. This reconstruction of the roadway segments would include 12 foot wide lanes and 4 foot paved shoulders. Right of way width of 60 feet would be acquired as needed and utilities relocated as needed. See Attachment B, Alternative 3A/B for locations needing horizontal and vertical sight clearance improvements.

### **Alternative 4: Sidewalk Addition between Howland Hill Road and Norris Avenue**

Alternative 4 would increase bike and pedestrian safety along Elk Valley Road between Howland Hill Road and Norris Avenue. A 5 foot wide sidewalk would be required, along with curb and gutter and a 5 foot clearance distance from gutter flowline to the edge of travel way. The sidewalk would be placed on both sides of the corridor to accommodate pedestrian traffic. An estimated 18” diameter corrugated steel pipe with drainage inlets located approximately every 250 feet are necessary on one side of the roadway to address drainage needs. In

addition, 12 foot standard lane widths on both lanes and 4 foot paved shoulders would be constructed. See Attachment B, Alternative 4.

### **Alternative 5: Vertical Curve Improvement North of Howland Hill Road**

Alternative 5 would be applicable to improve the vertical curve sight distance just north of the Howland Hill Road intersection. Alternative improvements at this intersection have not been decided upon; the improvement of this curve could be necessary for stopping sight distance needs. Length of the improvements would be controlled by the amount of sight distance required for the design speed. See Attachment B, Alternative 5.

### **Alternative 6: Re-Striping Urban Stretch of Elk Valley Road**

Alternative 6 proposes to restripe the urban stretch of Elk Valley Road located between US 101 to Howland Hill Road. This one-mile stretch of roadway involves re-striping pavement markings and thermoplastic striping. This improvement is to be an aesthetic and visibility enhancing safety improvement for the surrounding community when the rural section is improved. See Attachment B, Alternative 6.

### **Alternative 7: No-Build Alternative**

The No-Build Alternative proposes to maintain the existing configuration of Elk Valley Road in its current configuration. However, this alternative does not allow Elk Valley Road to comply with standard lane widths, stopping sight distances, or multimodal safety standards. The crash rates along this corridor are above local, County and State averages for the given classification and volume of traffic. The No-Build option would not address any issues or concerns with bike, pedestrian or multimodal transportation facilities.

### **Supplemental: 60 foot wide Corridor Right of Way**

In the event that funding for right of way is secured, an estimate to acquire the 60-foot wide Right of Way along Elk Valley Road from Howland Hill Road to Parkway Drive in all areas not already secured to the 60 foot width was estimated. Estimated square footages and estimated costs for parcels requiring additional right of way can be found in Attachment E. Based on preliminary right of way record search, it is estimated an additional 586,567 SQFT at an estimated cost of \$4 per square foot would cost approximately \$2.35 million.

This estimate is based on available right of way records for existing roadway easements as recorded in the County Recorder's office. Preliminary Title Reports were not generated for this Corridor, so there is the possibility that certain easements along Elk Valley Road are not shown on the maps and records of surveys gathered for this effort. The 60 foot width was assumed to be

centered on the existing roadway and/or the parcel lines are at the center of roadway.

**Access to and from all existing parcels is proposed to be maintained for drivers traveling in either direction along the roadway.**

## 7. ALTERNATIVES COMPARISON MATRIX

For each alternative generated, a scale of 1 to 5 was given for the safety factor of each alternative with respect to each multi-modal aspect. A value of 1 signifies minimal safety improvements; a value of 5 signifies a large safety improvement value. A total value is shown as the sum of each value and ranges from 12 to 19.

Alternative	Vehicle Safety Improvement	Pedestrian Safety	Bicycle Safety	Transportation Safety	Total	Total Cost
<b>1. Lane and Shoulder Widening Throughout</b>						
1 A - 12' Lanes, 4' Paved Shoulders	5	4	4	4	<b>17</b>	\$20,612,000
1 B - 11' Lanes, 2' Safety Striping, 3' Paved Shoulder	4	5	5	5	<b>19</b>	\$20,882,000
<b>2. Intersection Improvements</b>						
2 A - Howland Hill Rd Roundabout	5	5	4	4	<b>18</b>	\$4,670,000
2 B - Norris Ave/ Harbor View Dr. Left Turn Pockets	4	4	3	3	<b>14</b>	\$2,930,000
2 C - Cooke St. Left Turn Pocket	3	3	3	3	<b>12</b>	\$2,090,000



2 D - Parkway Dr. Lane Elimination	4	2	3	3	<b>12</b>	\$780,000
<b>3. Sight Distance Improvements</b>						
3 A - Vertical Curve Sight Distance (2 Locations)	5	4	4	4	<b>17</b>	\$4,955,000
3 B - Lateral Sight Distance (2 Locations)	4	4	4	4	<b>16</b>	\$573,900
<b>4. Sidewalk Addition between Howland Hill Road and Norris Avenue</b>						
5' Sidewalk both side of Elk Valley Road	4	5	4	3	<b>16</b>	\$2,147,500
<b>5. Vertical Curve Improvement north of Howland Hill Road</b>						
Vertical Curve Sight Distance Improvements	5	3	4	4	<b>16</b>	\$1,477,500
<b>6. Re-Striping Urban Stretch of Elk Valley Road</b>						
Re-stripe existing roadway	3	3	3	3	<b>12</b>	\$175,000

The results from the comparison matrix indicate that the most beneficial improvements to safety along this corridor are lane and shoulder widening, along with intersection improvements. Lane and shoulder widening along the entire rural stretch of the corridor, as described by alternative 1B, would have the best safety improvement benefit with a score of 19 and cost of \$20.88 million. The intersection improvement proposed in alternative 2A has a benefit score of 18 and cost of \$4.67 million.

## **8. ALTERNATIVES COST ESTIMATES**

The following table is the summary of the alternative cost estimates. See Attachment C for individual detailed alternative cost estimates.

**Table 4 Alternative Cost Estimates Summary**

<b>Alternative</b>	<b>Construction Cost</b>	<b>Right of Way</b>	<b>Permits &amp; Environmental Mitigation</b>	<b>PA &amp; ED/ PS&amp;E</b>	<b>Construction Engineering</b>	<b>Total</b>
<b>1. Lane and Shoulder Widening Throughout</b>						
1 A - 12' Lanes, 4' Paved Shoulders	\$13,500,000	\$2,400,000	\$252,000	\$2,430,000	\$2,030,000	\$20,612,000
1 B - 11' Lanes, 2' Safety Striping, 3' Paved Shoulder	\$13,700,000	\$2,400,000	\$252,000	\$2,470,000	\$2,060,000	\$20,882,000
<b>2. Intersection Improvements</b>						
2 A - Howland Hill Rd Roundabout	\$3,200,000	\$300,000	\$110,000	\$580,000	\$480,000	\$ 4,670,000
2 B - Norris Ave/ Harbor View Dr. Left Turn Pockets	\$1,900,000	\$300,000	\$110,000	\$340,000	\$280,000	\$ 2,930,000
2 C - Cooke St. Left Turn Pocket	\$1,500,000	\$25,000	\$85,000	\$260,000	\$220,000	\$2,090,000
2 D - Parkway Dr. Lane Elimination	\$500,000	\$25,000	\$85,000	\$90,000	\$80,000	\$780,000
<b>3. Sight Distance Improvements</b>						

3 A - Vertical Curve Sight Distance (2 Locations)	\$3,000,000	\$830,000	\$155,000	\$530,000	\$440,000	\$4,955,000
3 B - Lateral Sight Distance (2 Locations)	\$300,000	\$26,400	\$137,500	\$60,000	\$50,000	\$573,900
<b>4. Sidewalk Addition between Howland Hill Road and Norris Avenue</b>						
5' Sidewalk both side of Elk Valley Road	\$1,500,000	-	\$147,500	\$270,000	\$230,000	\$2,147,500
<b>5. Vertical Curve Improvement north of Howland Hill Road</b>						
Vertical Curve Sight Distance Improvements	\$700,000	\$400,000	\$137,500	\$130,000	\$110,000	\$1,477,500
<b>6. Re-Striping Urban Stretch of Elk Valley Road</b>						
Re-stripe existing roadway	\$120,000	-	\$5,000	\$30,000	\$20,000	\$175,000

## 9. COMMUNITY INVOLVEMENT

A preliminary public workshop was conducted on November 15, 2016 to inform the community of the multimodal corridor plan investigation. The information and public input can be found in Attachment G.

A second public workshop was conducted on March 14, 2017 to inform the community about the proposed alternative elements and to allow the opportunity for community members to comment on the proposed alternatives. A summary of comments received from this workshop can also be found in Attachment G.

To inform the public of these workshops, direct emailing of local officials, posting on DNLTC project website, flyers, radio advertisements, roadside banners, and newspaper ads were displayed in and around Elk Valley Road and Crescent City. After each public workshop the website was updated with the current information presented at the workshop so the public could review the information presented.

## 10. ENVIRONMENTAL DETERMINATION/DOCUMENT

An Environmental Constraints Overview Report was completed for the Elk Valley Road Multimodal Corridor Plan. Various potential work constraints exist along the corridor, such as fish passage migration season, non-breeding season, and summer low flow season. Three sensitive areas exist as cultural resources and collaboration with the Elk Valley Rancheria could be required. The Marbled Murrelet Critical Habitat, Jordan Creek fish passage requirements, Elk Creek summer low flow, potential Marbled Murrelet habitat, and Crescent City Plank and Turnpike Rd are all observed to have potential environmental constraints. Further alternative review will be prepared for alternative advancement. See Attachment D.

## 11. FUNDING

The specific funding source for this project has yet to be determined. The current federal authorization is Fixing America's Surface transportation (FAST) Act, which include Highway Safety Improvement Program (HSIP) and Congestion Mitigation & Air Quality (CMAQ). State funding options range from the Regional Transportation Improvement Program (RTIP) to the State Active Transportation Program (ATP). The purpose of this multimodal plan is to provide the County and DNLTC the needed information to program future projects to improve Elk Valley Road. Different funding sources have different application cycles, and due to Elk Valley Road's accident history, HSIP and ATP funding are two of the more likely viable funding options.

## 12. SCHEDULE

<b>Milestones</b>	<b>Delivery Date (Month, Day, Year)</b>
Draft Corridor Plan	4/3/2017
Final Corridor Plan	6/1/2017

Advancement of alternatives is dependent on future funding as it becomes available.

## 13. FHWA COORDINATION

FHWA coordination will depend on the funding type for this project. The specific funding source for this project has yet to be determined.

## 14. DEVELOPMENT TEAM

<u>Name</u>	<u>Title</u>	<u>Telephone</u>
Heidi Kunstal	Director Community Development, DNC	707-464-7254
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Tamera Leighton	Executive Director, DNLTC	707-465-3878
Brian Stephenson	Project Engineer, Dokken Engr.	916-858-0642
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Tim Chamberlain	Assoc. Enviro. Planner, Dokken Engr.	916-274-0557

**15. PROJECT REVIEWS**

<u>Del Norte Local Transportation Commission</u>	Date _____
<u>Del Norte County</u>	Date _____

**ATTACHMENTS:**

- A Project Location Map
- B Alternatives Exhibits
- C Alternatives Cost Estimates
- D Environmental Constraints Overview Report
- E Existing Right of Way Records Sheet
- F Existing Conditions Report
- G Public Meeting Records