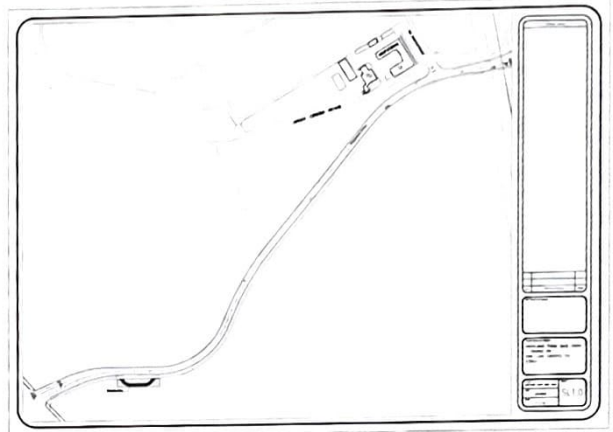
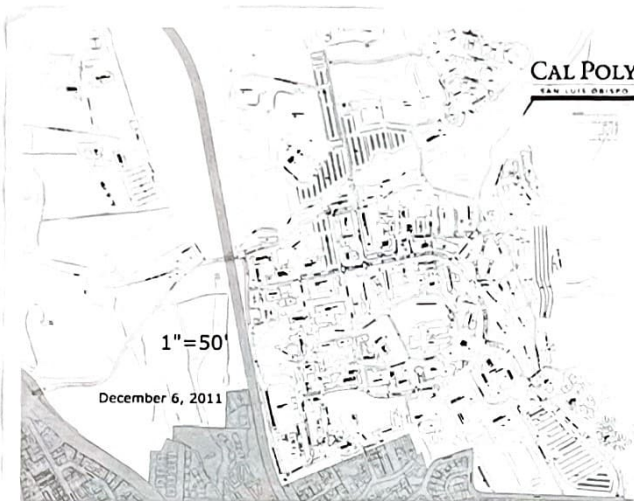


# New Bike Path On Highland Drive

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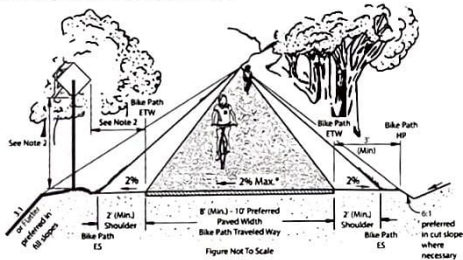
The purpose of the following paper is to provide a breakdown of the preconstruction and construction processes for the construction of a new bike path on Highland Drive. Studies about the selected construction method and material used to complete the project are included. Soil-cement will be at the forefront with the new path being constructed using this technique. One concern the paper will explain is the fact that the current bike path is not up to current code requirements. To address this concern there is information on the current code requirements and how the new path will be designed in accordance with the new coding requirements with charts and tables provided. The main concerns regarding this project were the feasibility and cost, both of which will be addressed in the paper.



## Highland Drive Bike Path Cost Estimate

Total Cubic Yards for Asphalt Removal				Length (ft)		Width (ft)		Height (ft)		Total CY	
2854				8		0.5		393.1851852			
<b>Equipment</b>											
Pulverizer		D1 track Type Tractor		Rollers		Sheepsfoot		Equipment Delivery and Removal			
Cost Per Hour	\$	975.00	\$	125.00	\$48.75	\$25.00	\$130				
Hours		8		18	8	8	16				
Total Cost	\$	7,800.00	\$	2,250.00	\$	390.00	\$	200.16	\$	3,040.00	
Grand Total		\$ 11,430.16									
<b>Materials</b>											
Cement CY	65.5308642										
Cement Tons	84										
Cement Price Per Ton	\$	86.00									
Delivery Cost Per Ton	\$	49.00									
Total Material Cost	\$	11,340.00									
<b>Labor Cost</b>											
Tractor Operator		Roller Operators		Laborer							
Number of People	1		2								
Cost Per Hour	\$	84.71	\$	84.71	\$48.19						
Hours		16		4	16						
Total Cost	\$	1,355.36	\$	677.68	\$	2,182.08					
Total Labor Cost	\$	4,215.12									
<b>Permits</b>											
US Fire Marshal	\$	240.00									
<b>Engineering Cost</b>											
Plan Review	\$	517.00									
Final Inspection	\$	864.00									
Total Cost	\$	1,403.00									
<b>Contractor Overhead</b>											
	\$	6,125.66									
Total Cost Estimate	\$	36,754									

## Two-Way Class I Bikeway (Bike Path)



## Bike Path Design Speeds

Type of Facility	Design Speed (mph) <sup>(1)</sup>
Bike Paths with Mopeds Prohibited	20
Bike Paths with Mopeds Permitted	30
Bike Paths on Long Downgrades (sleeper than 4%, and longer than 500')	30

NOTE:

<sup>(1)</sup> On blue paths with mopeds prohibited, a lower design speed can be used for the crest vertical curve, equivalent to 1 mile per hour per percent grade for grades exceeding a vertical rise of 10 feet, when at a crest in path.

## Construction Method



## Minimum Length of Bicycle Path Crest Vertical Curve (L) Based on Stopping Sight Distance (S)

$$L = 2S \frac{1600}{A} \text{ when } S > L$$

$$L = \frac{AS^2}{1600} \text{ when } S < L$$

Height of cyclist eye = 4 1/2 feet

Double line represents S = L

L = Minimum length of vertical curve – feet

A = Algebraic grade difference – %

S = Stopping sight distance – feet

Refer to Index 1003.1(11) to determine "S", for a given design speed "V".

Height of object = 1/2 foot

A	S = Stopping Sight Distance (ft)															
(ft)	70	80	90	110	125	130	150	170	175	190	210	230	250	270		
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