



Memorandum Engineering Division

January 22, 2014

To: Planning Commission
From: Thomas Frank, Transportation Engineering Manager *TF*
Subject: North El Camino Real Class I Bicycle and Pedestrian Path Project
Copies: William E. Cameron, Public Works Director / City Engineer
Thomas Bonigut, Assistant City Engineer
John Coppock, Chief of Police Services

ISSUE:

Should the Planning Commission forward to the City Council a recommendation to approve the conceptual plan for the subject project?

BACKGROUND:

In late 2011, the City received a Highway Safety Improvement Program (HSIP) grant to help construct a 0.9-mile long Class I bicycle path project on the ocean side of North El Camino Real between Camino Capistrano and Avenida Estacion. The project also consists of restriping, upgrading existing ADA ramps and modifications to two traffic signals. Since the programming of the grant funds in 2012, staff completed a draft conceptual design, met with PEDal, Orange County Bicycle Coalition (OCBC) representatives and Orange County Transit Authority (OCTA) to confirm actions needed to implement the conceptual design in conformance with the Master Plan of Arterial Highways (MPAH). OCTA staff was receptive of the City requesting an interim agreement to restripe El Camino Real from a four-lane divided highway (per MPAH) to a two-lane configuration with center turn lane as needed, with the intention of pursuing a full MPAH amendment. In December 2013, the City contracted with KOA to assist with completing the design and bid documents for the project.

The scope of the conceptual plan includes a single vehicle lane for each direction, Class II (striped) bike lanes and a Class I bicycle path with a width varying from 8 feet to 20 feet depending upon the existing right-of-way and physical constraints. Staff has received positive feedback on its draft conceptual design from both PEDal and OCBC representatives. Current project milestones targets include:

- Planning Commission Review January 2014
- City Council Conceptual Design Approval February 2014
- Completion of Improvement Plans,

Environmental Documentation, and Permitting	June 2014
• Caltrans Approval for Construction	August 2014
• City Council Approval of Improvement Plans	August 2014
• Project Construction	Early 2015

The conceptual plan and cross section elevations are provided in Attachment 1. Staff believes the design balances the needs of all the users of the roadway and addresses the key issues including:

1. Maintaining the same or better level of service for vehicles.
2. Implementing intersection and signal revisions that will both improve the safety and efficiency of the intersections including new curb extensions (at Camino Capistrano), detection loops and signal heads.
3. Implementing Class II bike lanes in each direction.
4. Implementing a Class I bicycle path.
5. Delineating a pedestrian path along the western side of the Class I path to better serve both pedestrians and bicyclists.
6. Allowing for future improvements along the corridor.

This project conforms with that contained within the approved HSIP grant. With that in mind, the conceptual plan allows for future phases of improvements along the corridor as opportunities materialize. A secondary goal for this project is to install bicycle signals at the intersection to improve the coordination between Class I bicycle pathway and crosswalk traffic. The bicycle signals will be incorporated as budget allows.

The design of the barrier separating the class I bicycle path from the vehicular travel lanes is a significant issue. Each barrier alternative has specific benefits, constraints, and costs as summarized in the Technical Memorandum provided in Attachment 2. The conceptual plan provides the area to incorporate any of various alternate barriers.

The conceptual design currently includes a structural barrier (K-rail) for the first 400 feet south of Camino Capistrano where the available separation width between the Class I pathway and the roadway is less than five feet and then transitions to a barrier consisting of an eight inch high median filled with decomposed granite filler. As budget allows, the plan may include nodes of landscaping to improve the aesthetics and provide a less linear appearance. To facilitate the potential for future landscaping, the project will include additional water laterals.

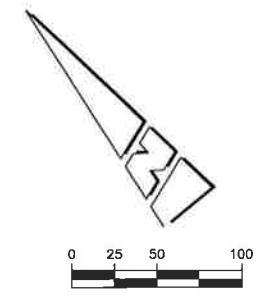
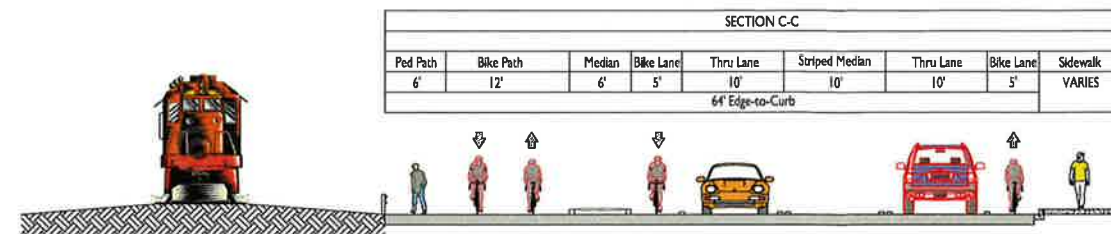
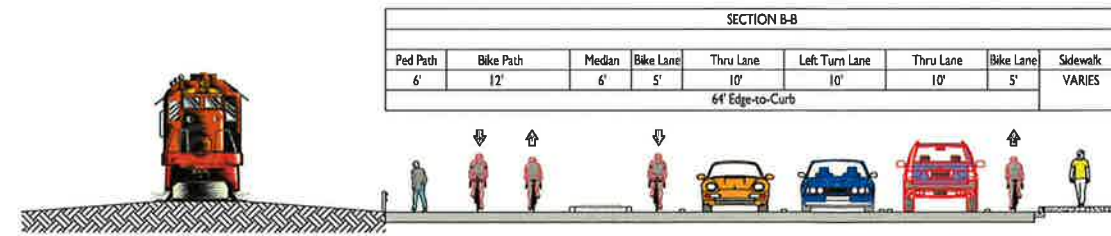
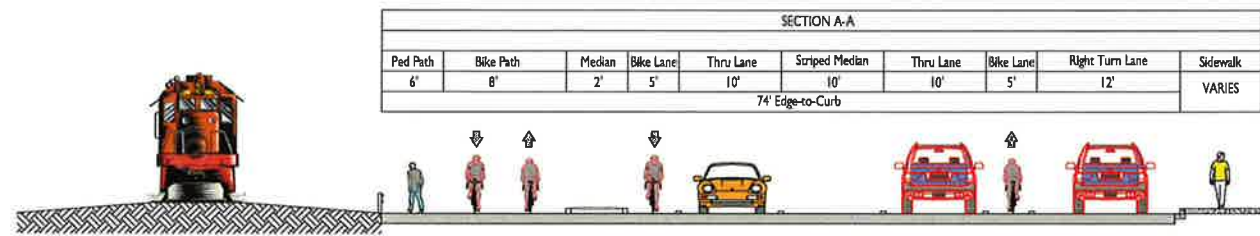
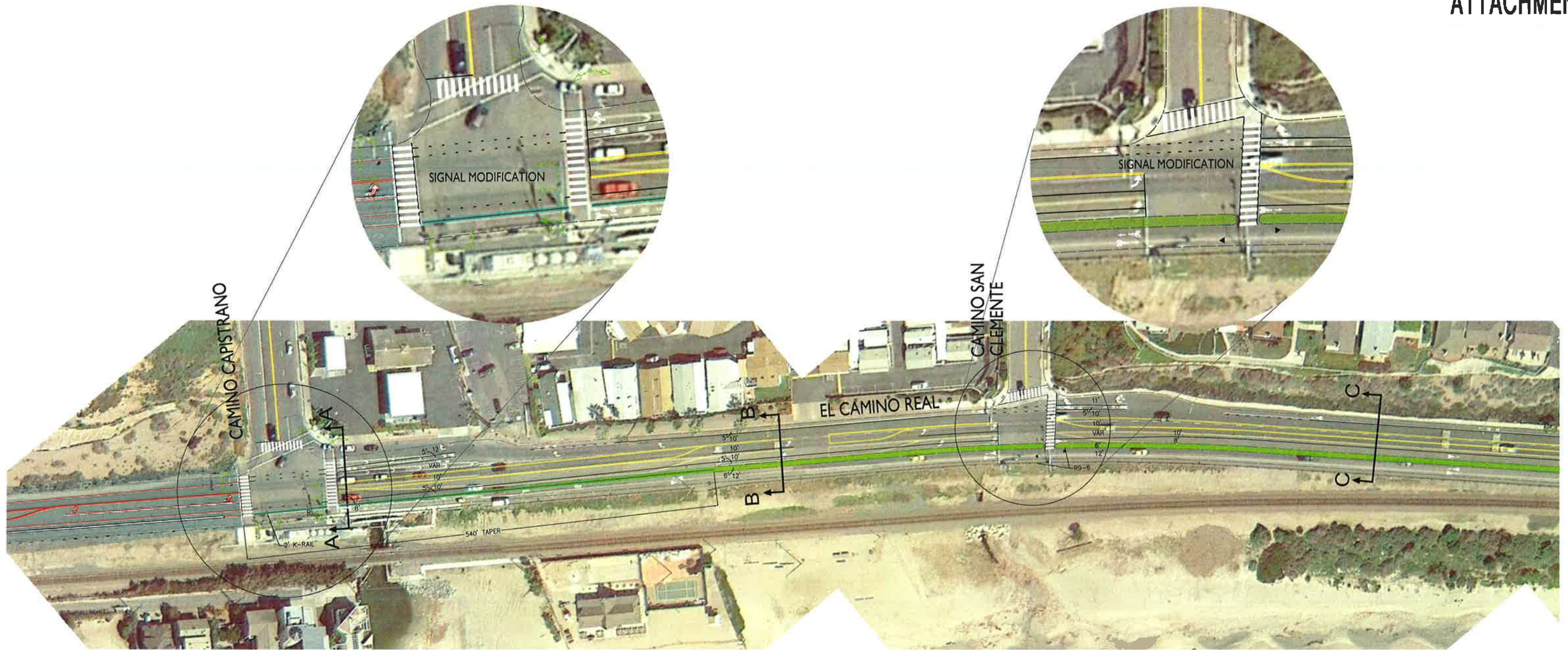
The eight inch curbed medians address the need for a physical barrier, acceptable aesthetics, and the safety of bicyclists. Similar applications of eight inch curbs used as a barriers adjacent to class I bicycle paths exist on the north side of Avenida Vista Hermosa east of Camino Vera Cruz, and the east side of Avenida Pata north of Vista Hermosa.

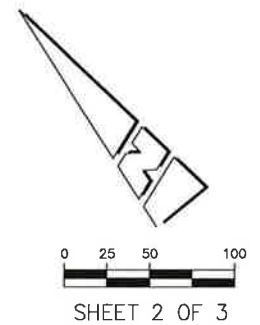
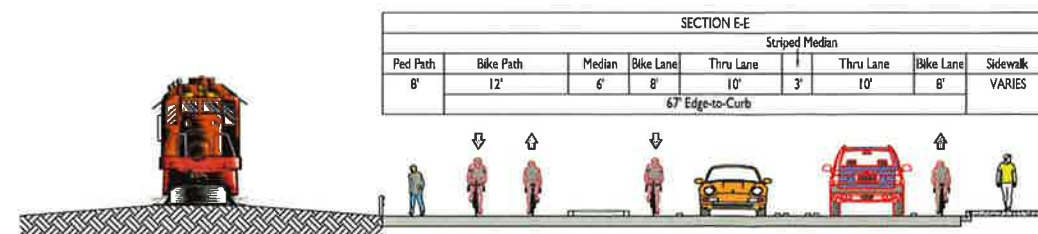
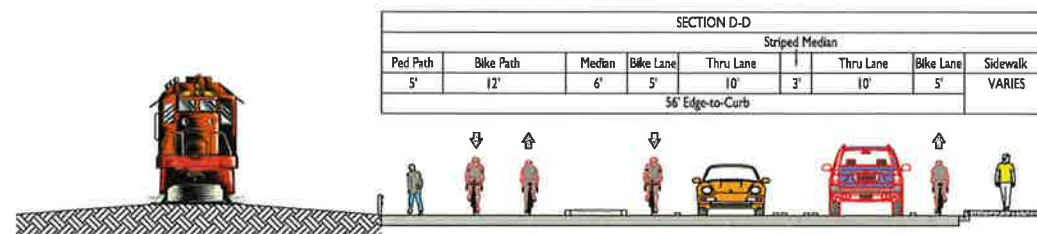
RECOMMENDATION:

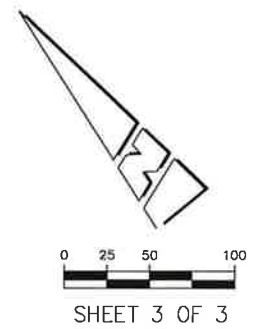
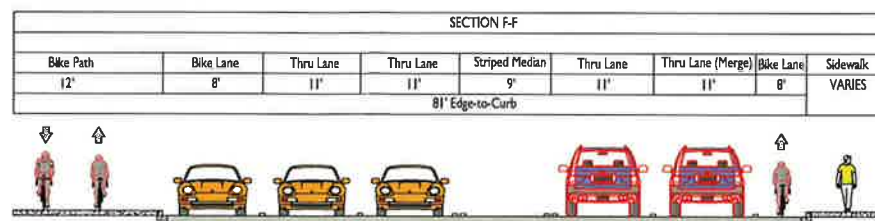
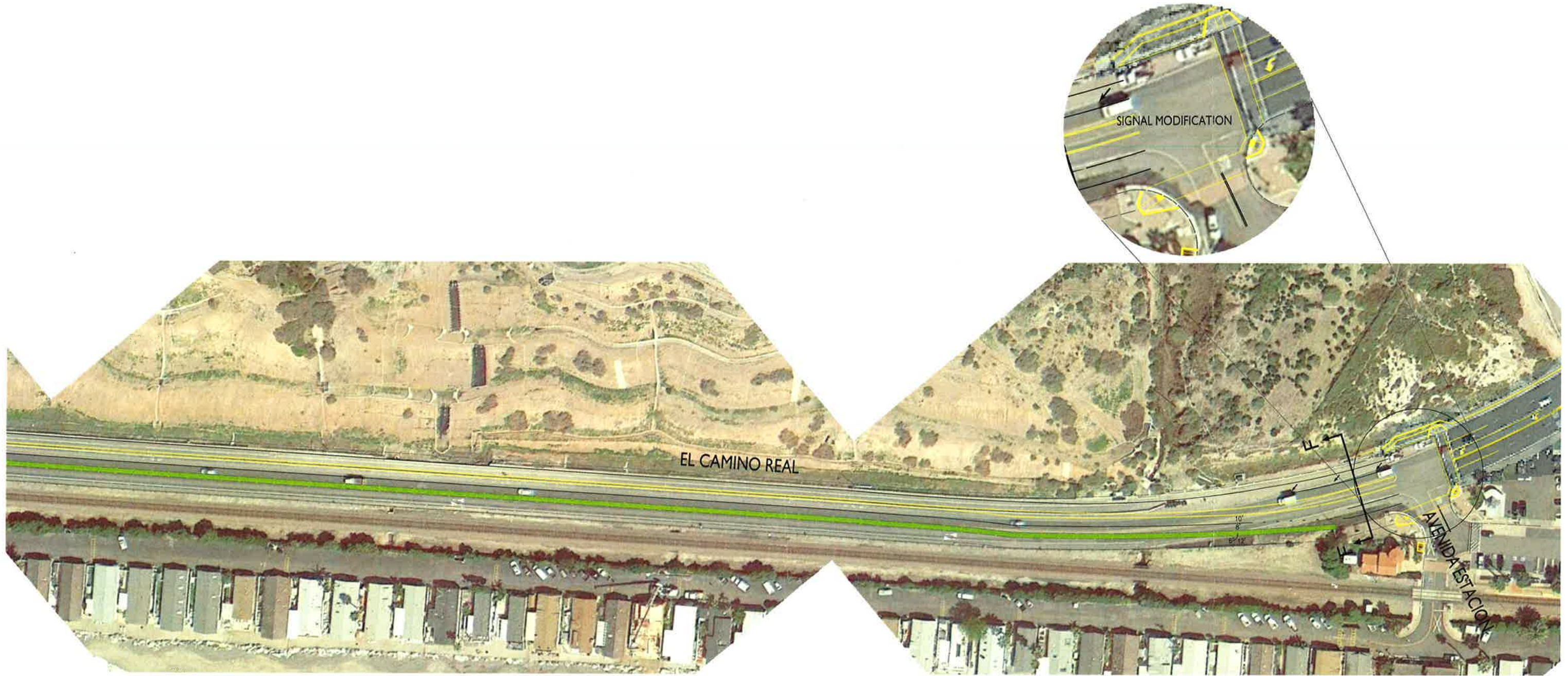
STAFF RECOMMENDS THAT the Planning Commission forward to the City Council a recommendation to approve the conceptual design for the project provided in Attachment 1.

Attachments:

1. Project Conceptual Design
2. Technical Memorandum regarding Barrier Alternatives







BARRIER ALTERNATIVES COMPARISON TECHNICAL MEMORANDUM

Date: January 14, 2014

To: Tom Frank, Jane Mrotek– City of San Clemente

From: Charlie Schwinger – KOA Corporation

Subject: Comparison of barriers
KOA Project JB33122

The improvement of bicycle and pedestrian safety along El Camino Real between Camino Capistrano and Avenida Estacion can be enhanced by creating a class I bikeway and pedestrian path on the existing pavement structure, separated from the travel way by a physical barrier. This bikeway and pedestrian path would be located along the southwest side of El Camino Real adjacent to the existing guard rail. Six feet would be allotted for the pedestrian path, twelve feet for the class I bikeway, and the six feet would be allotted for the physical barrier as a buffer between the travel way and the class I bikeway.

Four basic alternatives were explored upon the premise that the existing pavement structure would remain in place through the six foot wide buffer: a raised 8 inch high median, metal beam guardrail, temporary railing (Type K), and concrete barrier (Type 60).

8 Inch High Median

This alternative consists of dowelling two 8 inch high curbs spaced with 5 feet between them into the existing pavement structure, and then filling the space between the curbs with several possible materials, including but not limited to: decomposed granite, plain asphalt, plain concrete, textured and colored asphalt, pavers, or cobbles. Several of these various materials have been illustrated in the following photos. The choice of materials used depends on the aesthetic look desired, and the construction budget available.

Decomposed granite median filler adjacent to paved walkway



Stamped and Colored Concrete Median Filler

The construction cost of a dowelled on raised median for the barrier on El Camino Real will depend on the type of median fill extended for approximately 4800 feet. Plus other miscellaneous project costs such as signing, striping, and signal modifications. The costs for different types of median fillers vary widely, resulting in a range of construction costs between approximately \$32 per linear foot of median for decomposed granite filled up to approximately \$107 per linear foot for a textured colored concrete median.



The advantage of a raised median is that it does not provide a restricted feeling to the adjacent riders in the same way that a vertical barrier would. This may be particularly of interest to those cyclists still using the existing class II bikeway within the

travel way. A median barrier would also open the view of the ocean to the traveling public more than would a vertical barrier.

Cobble filled median

Metal Beam Guardrail

Metal beam guardrail provides the function of protecting bicycles and pedestrian from errant vehicles, but offers little aesthetic enhancement. The primary advantage of this barrier over other barrier types is that it has a low installation cost. While it may be possible to provide an alternative finish to the galvanized surfacing of the guardrail, the cost of the alternative finish and possible on-going maintenance cost could offset the cost savings benefits of the guardrail. Recent Caltrans bid prices for guardrail is in the order of magnitude of \$26 per foot.



Typical guardrail

Temporary Railing (Type K)



Temporary railing (Type K), or K rail, is generally used in construction zones to separate moving traffic from the work area. K rail has been used adjacent to the existing bike lane along El Camino Real in Dana Point. The advantage of K rail is that it is low cost and can be quickly installed and removed. Because it is considered temporary, manufacturers of K rail do not provide additional aesthetic treatments for K rail, because the advantage of being cheap and temporary would be defeated. K rail can be purchased and installed for a cost of approximately \$30 per foot.

K rail in Dana Point

Concrete Barrier (Type 60)

Sand blasted and painted barrier on I-710



Concrete barriers can be permanent as well as temporary. When barriers are permanent, there are more opportunities for aesthetic treatments. Patterns can be sand blasted into the completed barriers to create interest or liners with patterns can be placed into the forms for the barriers to create relief in the finished barriers. The varieties of patterns and colors that can be applied are nearly limitless. Plain concrete barriers (Type 60) can be expected to cost approximately \$50 per foot, while decorative barriers can be constructed for as low as \$55 per foot.

Ready-made form liners come

in a wide variety of styles, and custom form lines can be produced as well.





Cost Comparison

Barrier Cost Comparison

Barrier Type	cost per foot
DG Filled Median	\$32
Asphalt Filled Median	\$52
Plain Concrete Median	\$72
Stamped /colored Conc. Median	\$107
Cobble Filled Median	\$87
Metal Beam Guardrail	\$26
Temporary Railing (Type K)	\$30
Concrete Barrier (Type 60)	\$50
Concrete Barrier (Type 60) Decorative*	\$55

* costs may increase from here
depending on specific decorative
treatment

