Exhibit A

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DISCUSSION

INTRODUCTION

The California Department of Transportation (Caltrans) proposes to remove and replace the bridge rails on the Garrapata Creek bridge. This bridge is one of seven historic bridges in Big Sur, six of which have open spandrel designs. All seven bridges are part of the Carmel San Simeon Historic District (CSSHD), a non-contiguous district named after the rural state highway constructed between 1922 and 1938, which stretches approximately 75 miles from the San Carpoforo Creek in San Luis Obispo County to the Carmel River in Monterey CountyThe Garrapata Creek Bridge is also individually eligible for listing on the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR).

HISTORIC ASSESSMENT – INDIVIDUAL BRIDGE

On December 1, 2022 Caltrans submitted an updated version of the historical report which included the "Finding of Adverse Effect" (FAE). This finding is a term of art specific to historical projects which require "Section 106" consultation under the National Historic Preservation Act, and includes the historic analysis requested at the previous hearing and in accordance with Monterey County Coastal Implementation Plan (CIP) section 20.145.110.B.

Figure 1: Garrapata Creek Bridge, February 1932

Garrapata Creek Bridge is one of seven iconic concrete arch bridges known as the "Big Sur Arches" on Highway 1. The bridge was constructed in 1931 by the Hanran Construction Company for the California Division of Highways Bridge Department and is the first concrete arch bridge constructed on the scenic Carmel-San Simeon Highway. The bridge was seismically retrofitted in 1987 and 1998.

The bridge is eligible for listing in the National Register of Historic Placed (NRHP) and the California Register of Historic Places (CRHR), both under Criteria A/1, "*Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States"* for its association with the Highway

Beautification Movement and construction of the Carmel-San Simeon Highway, and under Criteria C/3, "*Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values"* as an example of reinforced concrete bridge design and engineering from the 1920s-30s.

The bridges character defining features are:

- It's use of re-enforced concrete materials;
- Its open spandrel;
- Fixed parabolic arch;
- Its six concrete T-beam approach spans;
- Its decorative cantileavered walkway; and
- Its decorative reinforced concrete railings with arched window design and smooth textured finish.

National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation is used evaluating the integrity of historical resources. Integrity is the ability of a property to convey it's historical significance, and it contains seven aspects, which are defined and discussed in relation to the project in the table below:

Aspect		**Definition**	**Relation to Project**
1.	Location	The place where the historic property was constructed or the place where the historic event occurred. The original location of a property, complemented by its setting, is required to express the property's integrity of location.	The bridge will retain its original location.
2.	Design	The combination of elements that create the form, plans, space, structure and style of the property. Features which must be in place to express a property's integrity of design are its form, massing, construction method, architectural style, and architectural details (including fenestration pattern).	The replacement of the rails will diminish the design integrity as the new bridge railings will have smaller openings and a larger base and baluster. The bridges substructure and spans will not be impacted.
3.	Setting	Addresses the physical environment of the historic property inclusive of the landscape and spatial relationships of the building(s). Features which must be in place to express a property's integrity of setting are its location, relationship to the street, and intact surroundings (e.g., neighborhood or rural).	The surrounding landscape and spatial relationships are not being modified, so there will be no impact to the setting.
4.	Materials	Refer to the physical elements that were combined or deposited during a particular period of time and in a	The original material of the rails will be removed, but the bridge will still utilize concrete.

		particular pattern of configuration to form the historic property. Features that must be in place to express a property's integrity of materials are its construction method and architectural details.	
5.	Workmanship	Is the physical evidence of the crafts of a particular culture or people during any given period in history. Features that must be in place to express a property's integrity of workmanship are its construction method and architectural details.	The integrity of workmanship will be diminished as the original rails and end treatments to be removed will be replaced with modern precast elements.
6.	Feeling	Is the property's expression of the aesthetic or historic sense of a particular period of time. Features that must be in place to express a property's integrity of feeling are its overall design quality, which may include form, massing, architectural style, architectural details, and surroundings.	The feeling will be somewhat diminished as the original more minimal rail evokes a sense of time for drivers, pedestrians, and passengers.
7.	Association	Is the direct link between an important historic event or person and a historic property. Features that must be in place to express a property's integrity of association are its use and its overall design quality.	The bridge will retain integrity its association with the construction of the highway and remain a contributing element to the Carmel San Simeon Historic

Table 1: Summary of Integrity Impact Assessment

Despite impacts to individual elements of integrity and one of its character defining features, after the project the bridge would still retain its overall integrity, remaining individually eligible for listing on the NRHP and CRHR.

In order to minimize adverse effects associated with the bridge, the architectural historian recommended developing a railing type that is visually compatible with the original bridge railing as possible. The result of this design effort has been the 86-H, which attempts to preserve as many of the features of the original railing as possible while still complying with the dimensional requirements of the MASH "TR-4" standard (See further discussion of this standard in the "Justification" section below). The design has been iterated several times to advance this goal and: it retains an arched opening type, which has been chamfered to maximize visibility while maintaining the maximum 6" width requirement of the standard; uses a rounded top pilaster consistent with the original rail with a similar vertical seam; locates major pilasters above the support structure, maintaining the same symmetry and visual relationships of the bridge; and maintains the same low 42" height of the original rails.

This is consistent with the development standard in CIP section 20.145.110.C.1., that development be modified to be compatible with a historical site through appropriate design,

structural and architectural features, and other techniques recommended by the historian. The color in the conceptual renderings has been similarly iterated, with the original color being a darker grey, and more recent renderings using a warmer "sandier" beige tone. In accordance with this standard and CIP section 20.145.110.C.2., staff are recommending a condition of approval requiring a final color selection mockup be done, which shall match the existing rail color as closely as possible.

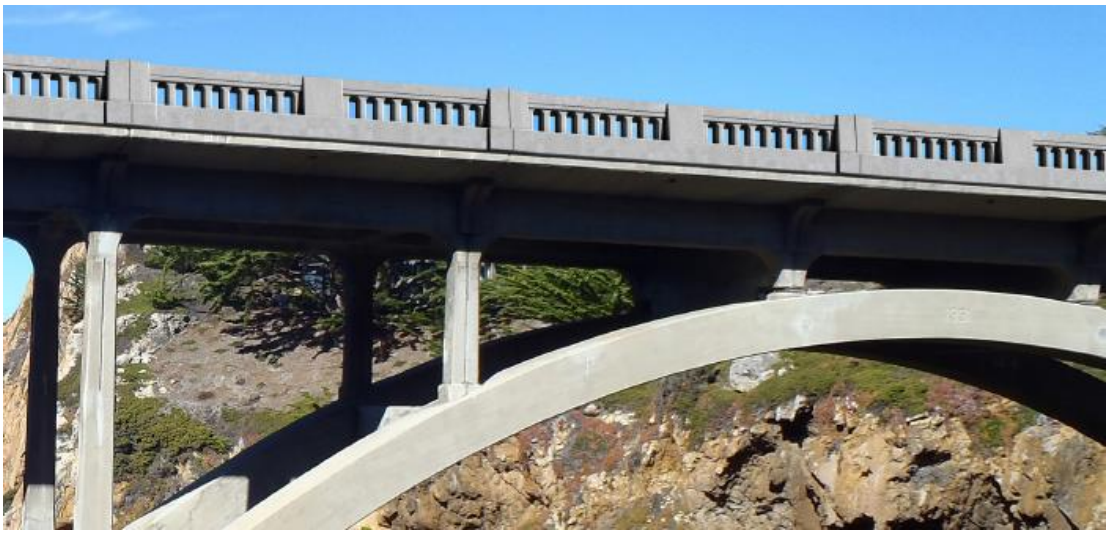

Figure 2: Proposed 86-H Rail

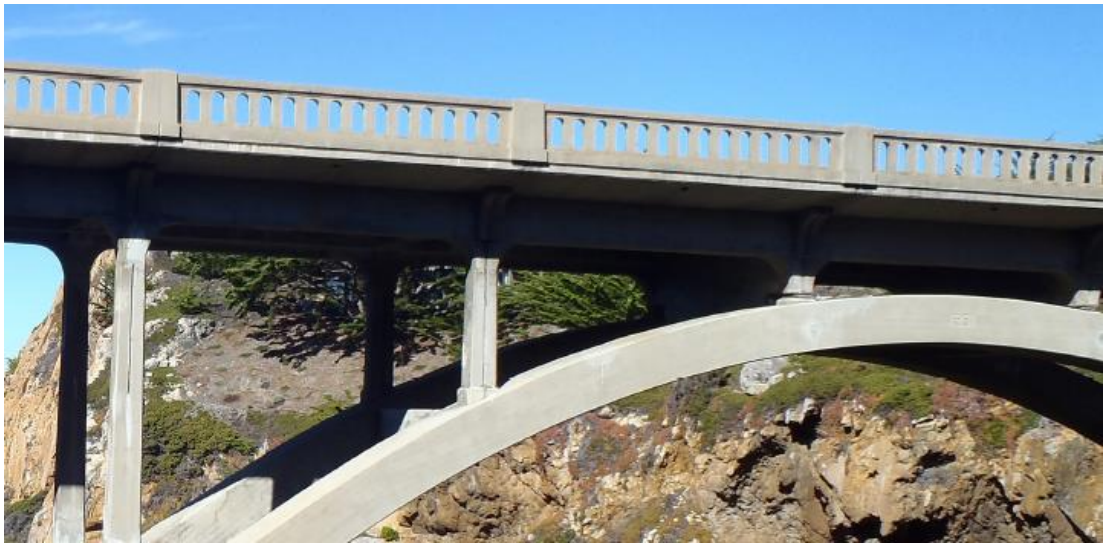

Figure 3: Existing Rail

JUSTIFICATION

Manual for Assessing Safety Hardware (MASH)

The Manual for Assessing Safety Hardware, also known as "MASH" is a set of design and testing parameters for bridge rails and other highway safety devices. Throughout this process, Caltrans have maintained that compliance with MASH is mandatory without exception,

submitting the 2019 MASH Implementation Memo and references to the Caltrans Highway Design Manual (HDM), Supplemental Design Information Bulletin No. 79-04, and Traffic Safety Systems Guidance. Staff's analysis is that this is Caltrans internal policy and they are unwilling to consider an exception for Garrapata Creek Bridge as it would jeopardize the health and safety of drivers and passengers utilizing the highway.

Traffic Speeds

This discussion relies on two different definitions of traffic speeds:

- The posted speed (or regulatory speed) is the speed limit at a particular location.
- The operating speed is the speed which drivers are driving at a location. The 85th percentile operating speed is the speed at which 85 percent of drivers are driving at or below.

One of the alternatives discussed in the last hearing and in the EIR was reducing the speed limit to 45 miles an hour and using a replacement rail which more closely aligns with the historic appearance of the existing rails, such as the "C411", a standard rail which is rated for a lower crash test level.

There are both statutory and safety reasons why the speed limit cannot be reduced in this location. The California Vehicle Code Section 22349(b) sets the speed limit on a two-lane undivided highway at 55 miles per hour. Section 22354 does allow Caltrans to reduce speed limits on the State Highway System, but they must make the finding that the reduction in speed limit is *"most appropriate to facilitate the orderly movement of traffic and is reasonable and safe".*

Caltrans conducted a speed survey in 2019 which determined the 85th percentile operating speed of drivers at Garrapata Greek Bridge was 58 miles an hour. The California Manual for Setting Speed Limits indicates that this 85th percentile operating speed is the speed that should be used to establish the speed limit. The studies cited in this manual indicate that reducing the speed limit below the 85th percentile generally results in increased collision rates. Therefore, it would not be possible to make the necessary findings to allow reducing the speed limit.

Additionally, the operating speed of a roadway is influenced by several factors, including but not limited to lane width, curve, line of site, obstructions, pedestrians, advisory speeds, and the posted speed (speed limit). The approach at Garrapata is straight and there doesn't appear to be any ability to alter the road geometry to induce lower speeds. The relationship between the posted speed and operating speed is also complex. Whether and how much posting a speed limit influences drivers' behavior is based on enforcement and other social and psychological factors. Even if the speed limit is reduced, which it can't be in this case, it would not necessarily reduce the operating speed of the highway. If the operating speed remains at around 58 miles an hour, designing a rail for 45 miles an hour would not be safe.

Replacement With a Different Rail Type

Looking at the possibility of using an alternative rail than the currently proposed 86-H more closely, MASH establishes different standards for different rail types based on the site-specific constraints, including speed. While not the only factor in selecting a rail at a particular location,

the proposed 86-H is a rail designed for high speeds (greater than 45 miles an hour) to meet the MASH "TR-4" standard, while an alternative rail the Historic Resources Review Board previously noted as the most consistent option to the existing rail, the Texas C411, was designed for low speeds (less than 45 miles an hour) to meet the MASH "TR-2" standard.

The reduced opening size was a concern of both the Land Use Advisory Committee (LUAC) and HRRB, and although it would still not match the dimensions of the existing rail, using the C411 rail would allow for taller (although it does not appear wider) openings. However, the C411 rail would not be appropriate at Garrapata Creek Bridge because of the design requirements for a rail rated to withstand impact at a higher speed.

The TR-4 standard used for the 86-H requires a higher base, thicker top rail, and the narrower arched openings. This is based on the fact that if a vehicle were to collide with the rail, the opening window can act as a "catch point" which hooks a cars bumper, causing it to rotate or flip and increasing the severity of accidents. The taller base height of the new rail increases the likelihood that a modern vehicle traveling at high speed would be redirected back into the lane after hitting a rail, and the reduced opening sizes mitigate the potential for catch points.

Repair

County staff asked if the bridge rails could be rehabilitated, generally, and notwithstanding Caltrans standards. In the Caltrans response December 6, 2022, District Chief of Maintenance and Caltrans' Structures Maintenance & Investigations (SM&I) states "Because the bridge rail is a safety feature, it must be brought up to MASH standards. Therefore, replacement is the only repair strategy."

Nevertheless, the evidence indicating that repair would likely be infeasible at Garrapata Creek Bridge is:

- The railings are in a significantly deteriorated state as evidenced form the 2021 report and photos Caltrans have submitted;
- Caltrans Structures and Maintenance Division reports from as early as 2009 recommended replacement due to the on-going deterioration of the rail, and their current analysis is that it the rail is unsafe at any speed; and
- County staff conducted a site visit on December 13, 2022. The observed deterioration was extreme, particularly on the south side, and, despite discussion that repair was not an option, it appeared that spawl and section repairs had been attempted at different locations in previous years and were not successful in stopping the on-going corrosion.

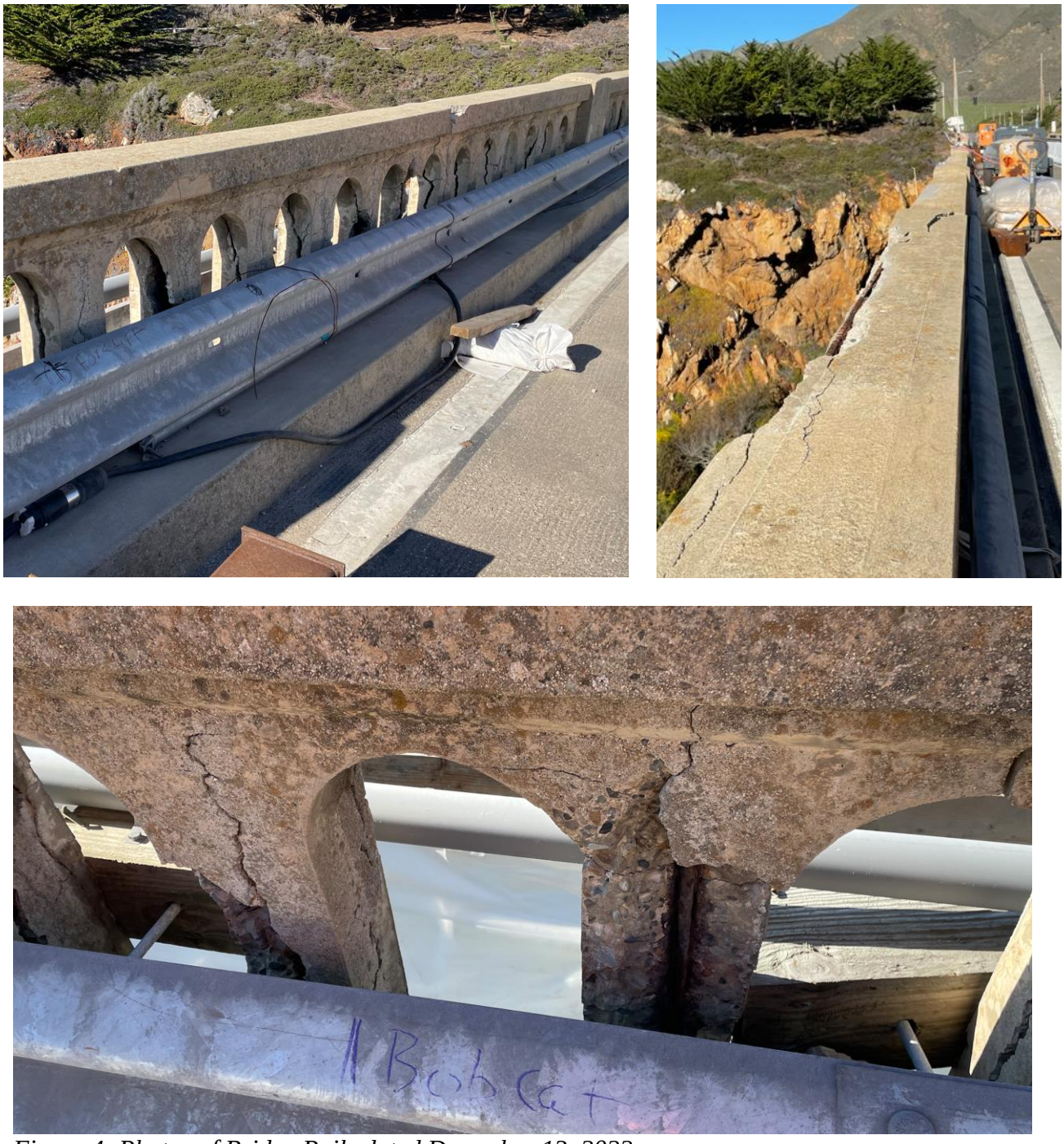

Figure 4: Photos of Bridge Rails dated December 13, 2022

HISTORIC ASSESSMENT – DISTRICT & CUMULATIVE IMPACTS

Carmel San Simeon Highway Historic District

As stated in the introduction, this bridge is one of seven historic bridges in Big Sur, six of which

have open spandrel designs. All seven bridges are part of the Carmel San Simeon Highway Historic District (CSSHHD), a non-contiguous district named after the rural state highway constructed between 1922 and 1938, which stretches approximately 75 miles from the San Carpoforo Creek in San Luis Obispo County to the Carmel River in Monterey County. The district includes 241 contributing elements, primarily engineering features which are a part of or adjacent to the highway, including culverts, fountains, stone wall features, and the seven Big Sur bridges.

The Carmel-San Simeon Highway Historic District is significant under National Register of Historic Places (NRHP) criteria A *"… associated with events that have made a significant contribution to the broad patterns of our history"* for its association with the highway beautification movement during the 1920's and 30's, and under criteria C *"… embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction"*, as representative of the extensive use of handcrafted masonry, generally executed by skilled by skilled masons.

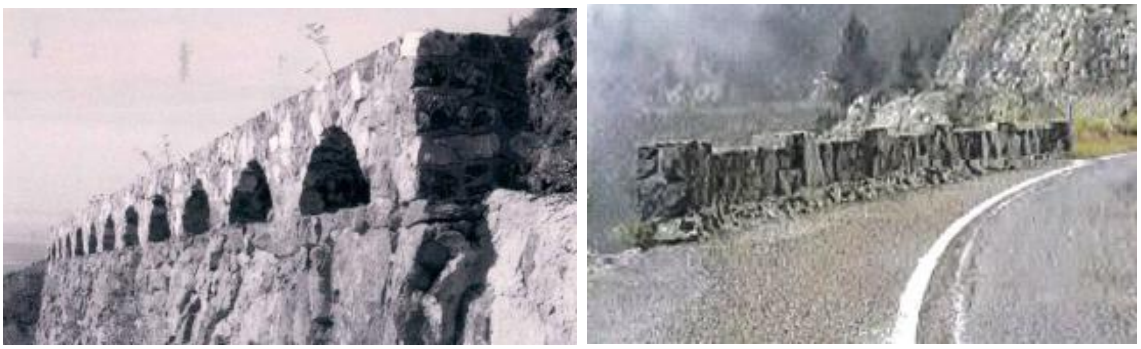

Figure 5: An arcade-style masonry parapet and battlement parapet

The historical report prepared for the project describes the seven bridges as *"The most iconic and visually prominent historic engineering features located within the CSSHHD"*. Essential to understanding of the CSSHHD is its fundamental discontinuity. The highway itself is not a contributing feature due to its numerous alterations over time, and its boundary is defined around each of its 241 individual contributing elements. The 7 bridges and railings themselves already have discrete designs. Examples include Malpaso Creek Bridge, which has gabled railing openings, and Wildcat Creek Bridge, with closed spandrels and no rail openings whatsoever.

Therefore, while the project will adversely impact a contributing structure, the bridge will still be able to convey its historical significance and be a contributing structure to the CSSHHD; and Garrapata Creek Bridge having a distinct railing design will not affect the overall integrity of the district.

Figure 6: Wildcat Creek and Malpaso Creek Bridge

Future Bridge Rail Projects

Slightly distinct form the district itself, and while this permit is only for the Garrapata Creek Bridge, inclusion of the not yet proposed replacements on the other 5 other historic Big Sur Arches in the Tier I EIR and historical reports has brought into sharp focus how the decision on this project could influence the decision-making processes on the other bridges. Staff's analysis is that it should not, and that all of the same questions that have been asked in this review process will still be relevant in consideration of each bridge rail.

Despite a large quantity of public input and several design iterations; something that staff believes has caused considerable frustration in the review of this project has been the insistence on the use of a standard as a shorthand for project specific evaluation. Health and safety on the highway is paramount, but application of a standard for its own sake is a more nebulous justification. Standards are, however, often adopted for a reason. So bridging analytical gap between health and safety and the use of a standard in each case needs to done in a clear, comprehensible, and succinct way.

We believe we have, though the EIR, supplemental package submitted in August, and additional letters and materials submitted in December, received this information for the Garrapata Creek Bridge. We have not for the other bridges, which will receive their own environmental and Coastal Development Permit review.

Consideration of the operating speed and speed limit at the other locations will be particularly important at all the other locations in this effort, as it will allow consideration of a MASH compliant rail rated for lower speeds that more closely maintains the historic character of the existing rails, such as the "TR-2" rated C411 rail. This would be in line with the stated purpose of the EIR, using a current safety standard compliant rail to ensure the reliability of the highway. To ensure the decision on this project does not preclude this kind of analysis, staff are recommending a condition to require a traffic report with a speed study and evaluation of possible ways of reducing speeds at a particular location as a requirement for the submittal of Coastal Development Permits for each rail project.

While not recommended as required because the timing of each proposal is unknown, a programmatic speed study of all the other bridges could be beneficial. If there are several bridges in a row which have significantly reduced speeds, lowering the speed along a contiguous stretch is something staff believes is worth exploring, as it could allow the use of a "TR-2" rail, be in line with the general traffic engineering principle that a uniform speed is preferrable along a singular stretch of roadway, and prevent proliferation of additional signage along Highway 1, an aesthetic concern noted by a commenter at the last HRRB meeting.

ADDITIONAL QUESTIONS FROM THE HEARING

There were additional questions from the board members and the public. The first was whether the bike rail was proposed at this location, it is not. There was also question regarding any and all possible solutions to saving bride rails, not only at Garrapata Creek Bridge. Staff's recommendation is that based on the information presented, the HRRB recommend approval of the project. However, some supplemental discussion on that topic is below.

Petition AASHTO / Caltrans for alternative testing parameters

One possible solution for saving portions of existing rails (in general, not specific to Garrapata) would be to petition the AASHTO or Caltrans for alternative but equivalent testing parameters for existing bridge rails. One of the requirements for the Manual for Assessing Safety Hardware (MASH) is the that the rail designs be physically crash tested by running vehicles of different sizes into the rail. This ensures that the design development accounts for all factors and ultimately results in a safe rail but cannot be feasibly done with an in place structure.

Petition the California State Legislature for changes to the California Vehicle Code (CVC) to allow reduced speed limits

Exploring using a MASH compliant rail rated for a lower speed in order to be closer to the physical characteristics of the existing rails was something that was explored but determined not possible at Garrapata Creek. If greater flexibility existed in the CVC to reduce speed limits; it may allow this option to continue to be pursued for future projects.