

April 24, 2022

Matt Machado, Deputy CAO and Public Works Director
County of Santa Cruz
701 Ocean Street, Room 400
Santa Cruz, CA 95060

Ben Blom, Field Manager
Central Coast Field Office
940 2nd Ave., Marina, CA
93933-6009

Subject: **Impacts on Warrenella Road Intersection with Cement Plant Road
from Proposed BLM Access to Cotoni Coast Dairies**

Dear Director Machado and Field Manager Blom:

I am a California registered Traffic Engineer and licensed Civil Engineer, in private practice for over 35 years in the local area. In my practice I provide expert consultation as well as litigation support and expert testimony. Before entering private practice I was employed as a City Traffic Engineer and AMBAG Regional Traffic/Transportation Engineer. In private practice I have also worked as a Consulting City Traffic Engineer for the City of Saratoga. A key component of my traffic engineering work on behalf of municipalities has been the prevention of inadequate safety design. At the request of four interested parties,¹ I have been requested to provide an analysis of the traffic conflict and safety impacts resulting to the Warrenella Road intersection with Cement Plant Road from the proposal by BLM to add an Access with Cement Plant Road approximately 60.5 feet to the north in order to serve a proposed 42-vehicle Parking Lot for the northern entrance to Cotoni-Coast Dairies. My conclusion is that the BLM proposal, if implemented, would result in significant traffic conflicts and safety impacts. My explanation follows.

Regulatory and Policy Context

Pursuant to County Code §9.70.380(B):

all encroachment work performed on any County-maintained road or right-of-way under the jurisdiction of the County shall conform to the County of Santa Cruz Design Criteria, and to the construction specifications contained in the current edition of the Standard Specifications of the State of California, issued by the State Department of Transportation, as may be amended by special provisions adopted by the Board of Supervisors.

County of Santa Cruz Design Criteria regulations for “DRIVEWAYS AND ENCROACHMENTS” provide that:

Driveways shall not interfere with legal encroachments nor create hazards or nuisances, and shall be spaced to maximize available street parking.

¹ Davenport North Coast Association (DNCA), Big Creek Lumber, Molino Creek Farms, and Friends of the North Coast (FONC)

Warrenella Road intersection with Cement Plant Road is an existing legal encroachment. The traffic engineering question to be analyzed is whether BLM's proposed addition of an Access with Cement Plant Road approximately 60.5 feet to the north in order to serve a proposed 42-vehicle Parking Lot could interfere with such Warrenella Road intersection, or create hazards or nuisances.

The Standard Specifications of the State of California, issued by the State Department of Transportation focus on construction more so than design and hence do not address spacing of intersections.

The AASHTO² *Policy on Geometric Design of Highways and Streets* (2018 -7th Edition) is the standard road design policy throughout the United States. At Section 2.5.1 (p. 2-43) AASHTO provides that:

Each abutting property is permitted access to the street or highway; however, the location, number, and geometric design of the access points are governed by the regulations.

In this case the governing regulations are the County regulations quoted above which require that the proposed BLM Access avoid interfering with the Warrenella Road intersection with Cement Plant Road or causing a hazard or nuisance.

AASHTO Section 4-15.2 provides that “[t]he objective of driveway regulations is to preserve efficiency and promote operational efficiency by prescribing desirable spacing and proper layout of driveways.” For further information on the regulation and design of driveways, this AASHTO Section references the work of the Transportation Research Board (TRB), which defines access management as “the coordinated planning, regulation, and design of access between roadways and land development” for the purpose of preserving the safe and efficient movement of peoples and goods.

According to the TRB³, the spacing of access for driveways and streets is an important element in the planning, design, and operation of roadways. Access points are the main source of accidents and congestion. Their location and spacing directly affect the safety and functional integrity of streets and highways. The spacing of driveways and streets needs to reflect sound traffic engineering principles, driver behavior, and vehicle dynamics. Spacing should consider influences such as:

1. Highway function.
2. Access class and speed.
3. Locations of upstream and downstream streets and driveways.
4. Volume of trucks.
5. Expectancy of drivers.
6. Separation of conflict areas.
7. The number of conflict points within each conflict area.

Conflict separation is essential to achieve improvements in travel times, capacity, and safety. Separation of conflict points, such as driveways and streets, should focus on the element of time and its

² American Association of State Highway and Transportation Officials

³ This paragraph quotes from p. 12 of *Driveway and Street Intersection Spacing*, TRANSPORTATION RESEARCH CIRCULAR, Number 456, March 1996 ISSN 0097-8515.

relationship to the driving task, which includes perception, reaction, navigation, and execution of the necessary maneuver. Vehicle dynamics and driver behavior are important determinants of access spacing.

Factual Context

The Bureau of Land Management (BLM) Resource Management Plan Amendment (RMPA) for the Cotoni-Coast Dairies unit of the California Coastal National Monument states that “[u]nder Alternative D [which is the BLM-adopted Alternative], visitation is expected to fall between 150,000 to 250,000 annual visitors.” The BLM Access which is the subject of this report would be the only access to Cotoni-Coast Dairies for several years or more.

Santa Cruz County Public Works Department has on March 15, 2022 approved an Encroachment Permit for accessing BLM’s proposed 42-vehicle Parking Lot serving the northern entrance to Cotoni-Coast Dairies (Attachment 1). As the Encroachment Permit Map shows, substantial efforts and signage are proposed by BLM to assure that visitors approach the BLM Access from the north end of Cement Plant Road. On April 18, 2022 BLM provided the Davenport North Coast Association with page 1 of 9 of the Warrenella Parking Lot Plan which includes more detail regarding the Access (Attachment 2).

Warrenella Road is used by tractor-trailers, including loaded logging trucks and service vehicles which frequently transport heavy equipment. A significant number of these tractor-trailers are as much as 60 feet long.

BLM’s Access is close to Warrenella Road (60.5 feet, centerline to centerline). Cement Plant Road is a narrow road which varies from 15’ – 18’ in width in this immediate area. Warrenella Road has an associated locked manual gate which is approximately 60’ from Cement Plant Road.

Attachment 3 is a photo of the area including two vehicles intended to show the relationship between the existing Warrenella Road intersection and BLM’s proposed Access with Cement Plant Road. The photo shows a white CRV parked in the approximate location of the BLM Access centerline. The CRV is just in front of the large stump that Field Manager Ben Bloom pointed to as the approximate centerline of the BLM Access during an on-site meeting with a number of DNCA Board members, including Board member Brian McElroy who staged the vehicles and took the photo which is Attachment 3. The 20-foot long van is parked at the side of Cement Plant Road. The back of the van is in line with the north edge of Warrenella Road. From the north edge of Warrenella Road to the white CRV at centerline of the BLM Access is 48 feet. Warrenella Road is 25 feet wide, so adding the 12.5 feet to its centerline with the 48 feet results in a centerline to centerline measurement of approximately 60.5 feet.

Many versions of tractor-trailers pass through the Warrenella Road gate (*e.g.*, BLM trucks with trailers, logging trucks, trucks pulling horse or cattle trailers, trucks pulling trailers with tractors or other heavy equipment). Tractor-trailers move frequently through that gate for agriculture, logging, fire management, PG&E activities (including at its substation) and other land management purposes. Convoys of vehicles doing work on and touring in the San Vicente Redwoods property are becoming more frequent. At the current time trucks using Warrenella Road that are long and need

space to open the gate and then move through it double park on Cement Plant Road. They access Highway 1 by angling right onto a makeshift road about 275 feet south of Warrenella Road, then travel about 230 feet, crossing the railroad tracks, and intersect Highway 1. DNCA Board members have been informed by County officials that this makeshift crossing will be closed in the Spring of 2022. Once closed, tractor-trailers departing Warrenella Road will only have two choices to access Highway 1 via Cement Plant Road: (1) at the north end (about 0.3 mile); or (2) at the south end (about 0.65 miles over proposed speed bumps). Most, if not all, logging trucks will head north from the Warrenella intersection with Cement Plant Road in the direction of the Big Creek Lumber mill.

Analysis of turns by Tractor-trailers

The small 60.5 foot distance between Warrenella Road and the BLM Access does not allow for the margin of maneuverability that is needed for tractor-trailers turning right from Warrenella Road onto Cement Plant Road and heading north. Thus, vehicular conflict will occur as a result of the new BLM Access being located only a very short distance of 60.5 feet from the existing Warrenella Road intersection. Utilizing AASHTO standards and terminology discussed in the next paragraph, Turning Templates were applied to determine that such conflicts will occur.

Pursuant to AASHTO Section 2.8.1 (p.2-55), in the design of any roadway facility, the designer should consider the largest design vehicle that is likely to use that facility with considerable frequency. At Section 2.8.2, p. 62 AASHTO states that “[f]or local roads and streets, the WB-40 [WB-12] is often considered an appropriate design vehicle.” The Template for this design vehicle can be found at AASHTO p. 2-75, Figure 2-22, pursuant to which it can be determined that significant vehicular conflict, interference as to use of Warrenella Road, and safety impacts will occur if the newly proposed BLM Access is implemented.

Thank you for your consideration of this analysis.

James C. Jeffery III PE, PTOE

Attachments 1 - 3

Cc: Davenport North Coast Association
Big Creek Lumber
Molino Creek Farm
Friends of the North Coast