

Report from the CCSD Board Ad Hoc Committee on Wildfire Evacuation May 12, 2022

On Aug. 19, 2021, the CCSD Board of Directors appointed two directors, Karen Dean and Tom Gray, as an ad hoc committee to study Cambria's wildfire evacuation planning with a focus on evacuation routes. The Committee has consulted other key individuals – including Cambria Fire Safe Focus Group Coordinator David Pierson, Cambria Fire Chief William Hollingsworth, and Craig Ufferheide, head of the Cambria Emergency Response Team – to develop strategies for better evacuation of residents and visitors alike, including residents who have special obstacles to evacuation such as disabilities.

The Committee's work in these areas is ongoing. It is developing evacuation brochures that will be available for presentation in a future report by the Committee, as well as information on sites on which the infirm and disabled can register for information on how to get help to evacuate safely, on preparing the necessities that they would need to take with them, as well as how to keep family members informed as to their whereabouts once evacuated.

On the subject of evacuation routes, the Committee has been working with Dr. Cornelius Nuworsoo, professor of city and regional planning at Cal Poly San Luis Obispo, to identify possible new configurations of existing routes or development of new routes to improve the speed and safety of evacuation in the event of a major wildfire.

Earlier this year, Dr. Nuworsoo completed his third study of fire evacuation in Cambria, with funding from a \$25,000 grant from CalFire. It is a follow-up to evacuation analyses conducted in 2019 for two parts of Cambria – areas south of Fiscalini Ranch and West of Highway One, and areas east of Highway 1. With this study, we now have analyses for all of Cambria under scenarios for different evacuated areas and alternate evacuation routes.

In today's report to the CCSD Board of Directors, we would like to present a summary of Dr. Nuworsoo's latest study. At this writing, the full report is undergoing final editing in preparation for public release. The following discussion briefly describes the study's assumptions, specific scenarios and findings.

Dr. Nuworsoo's new evacuation assessment, like the earlier ones, is designed to model the traffic movement (or lack thereof) that would occur during the rapid evacuation of large parts of Cambria during a major wildfire emergency. As with the other studies, it assumes that residential units and visitor lodgings are fully occupied, and that each household would evacuate with two vehicles, on average. All vehicle types in the traffic stream are converted to passenger car equivalents to account for buses, trailers, recreational vehicles, and commercial trucks in the traffic stream.

It further assumes that through traffic on Highway 1 would be at normal levels before additional traffic is generated by evacuation from Cambria. This assumption adds the

equivalent of 500 passenger cars on Highway 1 during the time frame of evacuation. (Trucks count for three passenger cars and RVs for two). Only southbound evacuation is modeled in all scenarios.

Note that this analysis, though assuming maximum *traffic*, is not able to predict the potential for other factors to impede evacuation, such as poor visibility due to smoke, nighttime conditions or fallen trees, stalled cars, and other potential obstructions.

In addition to scenarios based on using Highway 1 in its normal two-lane configuration, this study also analyzes scenarios with alternate evacuation routes, as well as a second southbound lane added to Highway 1 from Ardath Drive to Highway 46.

One alternate route is the existing emergency access road across the Fiscalini Ranch Preserve from Seaclift Estates to Marine Terrace. The other is a possible emergency access route from Marine Terrace to Highway 1 south of Highway 46. Labeled the “Beach Road,” this route would follow the existing four-wheel-drive track through the Norris Rancho Marino Preserve and other properties to an existing private road, Harmony Ranch Road, which serves several residences on the coast and joins Highway 1 south of the Highway 46 junction. It is important to note that, at this point, public agencies have not made arrangements with the property owners for use of the route, nor have they secured funding to improve it.

In the new study, Dr. Nuworsoo was tasked with analyzing these five scenarios:

1. Evacuate Park Hill and Moonstone Beach areas toward the south using *one* southbound lane on Highway 1.
2. Evacuate Cambria West of Highway 1 (Lodge Hill, Marine Terrace, Park Hill and Moonstone Beach) toward the south using *two* southbound lanes on Highway 1 from Ardath Drive to Highway 46.
3. Evacuate all neighborhoods toward the south using *two* southbound lanes on Highway 1 from Ardath Drive to Highway 46.
4. Evacuate Park Hill and Moonstone Beach toward the south across the existing emergency access route on the Fiscalini Ranch Preserve, continuing through Marine Terrace to the end of Ardath Drive, then on to Highway 1 via the Beach Road.
5. Evacuate both Lodge Hill and Marine Terrace toward the south using two routes: Highway 1 with *one* southbound lane, and the Beach Road to Highway 1 from the end of Ardath Drive in Marine Terrace.

In Scenario 5, the evacuation traffic would be divided along a line running northwest to southeast along Trenton Ave. and Norwich Ave. in lower Lodge Hill. Residents to west of that line would take the Beach Road route. Those to the east would evacuate via Highway 1.

In addition to these five scenarios, the new study includes results (Scenarios 6 & 7) from Dr. Nuworsoo’s two previous studies, as well as results (Scenario 8) for all neighborhoods that incorporates data from all three of his studies.

Summary of Findings:

The new study's findings are summarized in the table below. For each scenario, the table shows two figures for evacuation times. The first is the time needed to clear the "critical roadway segment" – either Highway 1 from Ardath Drive to Highway 46, or the Beach Road, depending on the scenario. The other figure includes the critical roadway segment clearance time *plus* "travel delay" – the time needed for all evacuation traffic to reach the critical segment.

	Evacuation Scenario (southbound only)	Evacuation via Highway 1			Passenger Car Equivalent Volume	Evacuation via Beach Road		
		Critical Roadway Segment 1 (CS1)	Hours to Clear CS1 Only	Hours to clear CS1, plus Travel Delay		Critical Roadway Segment 2 (CS2)	Hours to Clear CS2	Hours to Clear CS2, plus Travel Delay
1	Evacuate Park Hill and Moonstone Beach areas with 1 SB lane on Hwy 1	Hwy 1, Ardath Dr. to Hwy 46	1.5	1.9	2490			
2	Evacuate Lodge Hill w. of Highway 1, Marine Terrace, Moonstone Beach and Park Hill with 2 SB lanes on Hwy 1 from Ardath Drive to Hwy 46	Hwy 1, Ardath Dr. to Hwy 46	4.4	4.8	7445			
3	Evacuate all Cambria neighborhoods with 2 SB lanes on Hwy 1 from Ardath Drive to Hwy 46	Hwy 1, Ardath Dr. to Hwy 46	2.8	6.8	9660			
4	Evacuate Park Hill via Fiscalini Ranch Preserve emergency road through Marine Terrace and on to Hwy 1 via Beach Road				1975	Beach Road	1.2	1.9
5	Evacuate Lodge Hill w. of Highway 1, and Marine Terrace using 1) Hwy 1 with 1 SB lane and 2) Beach Road	Hwy 1, Ardath Dr. to Hwy 46	1.7	1.8	2825 on Hwy 1; 2330 on Beach Road	Beach Road	1.4	1.8
6	Evacuate Marine Terrace and Lodge Hill w. of Highway 1, with 1 SB lane on Hwy 1	Hwy 1, Ardath Dr. to Hwy 46	2.9	4.7	4910			
7	Evacuate East Cambria (Leimert Estates, Happy Hill, Pine Knolls and Lodge Hill E. of Highway 1) via Hwy 1 with 1 SB lane	Hwy 1, Ardath Dr. to Hwy 46	1.8	2.8	3735			

8	Evacuate all Cambria neighborhoods with 1 SB lane on Hwy 1 from Ardath Drive to Hwy 46	Hwy 1, Ardath Dr. to Hwy 46	5.7	6.8	9660			
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In addition to this analysis, Dr. Nuworsoo's report offers the following "Concluding Observations":

- *The manageable evacuation scenarios are those likely to involve small zones or parts of evacuation zones. However, those types of evacuation scenarios are the least plausible given location, pattern of development, and vegetation in the study area.*
- *Evacuation of large zones or combinations of neighborhoods depict tenuous conditions which would pose danger to lives. While these are the more plausible scenarios under today's climate and related fire hazard conditions, Cambria has one evacuation route with one directional exit lane on Hwy 1 under baseline scenarios. This calls attention to the urgent need for more than one evacuation route and more than one lane for exit.*
- *Testing of improvised two lanes for exit on Hwy 1 or the addition of a secondary beach side road hold promise, but again for small zones or parts of evacuation zones. Using two southbound lanes from south of Ardath Dr. has the limitation of not ameliorating potential delay in the road network leading to the point of enabling the two lanes on Hwy 1, which happens to be the end of the route to safety, as it were.*
- *The ideal evacuation condition should consider the following:*
 - Completing the secondary beach side road for an additional exit route and lane.*
 - Designating the beach side road for use by those in the southwest area of Cambria (including western Lodge Hill and Marine Terrace), as they are in the closest proximity to that emergency access facility.*
 - Widening and strengthening shoulders on Hwy1 to enable improvised second southbound exit lane during emergencies.*
 - Extending the improvised second southbound lane further north on Hwy 1 from its intersection with Cambria Pines Road to a point below the intersection of Hwy 1 and Hwy 46. Various scenarios indicate capacity troubles on Hwy 1 as far north as the segment south of its intersection with Cambria Pines Road.*

Respectfully submitted:

Karen Dean and Tom Gray