Griffin Cove Transportation Consulting, PLLC

September 13, 2021

Mr. Everett DeLano
DeLano & DeLano
104 W. Grand Ave., Suite C
Escondido, California 92025

Subject: ***Proposed Trails at Carmel Mountain Ranch Project***
Final Environmental Impact Report – San Diego, California

Dear Mr. DeLano:

As requested, Griffin Cove Transportation Consulting, PLLC (GCTC) has completed a review of the transportation/circulation analysis completed with respect to the proposed Trails at Carmel Mountain Ranch project ("Project") in San Diego, California. The proposed project is the subject of a Final Environmental Impact Report (FEIR) prepared by the City of San Diego. (Reference: City of San Diego Development Services Department, *Final - Trails at Carmel Mountain Ranch Environmental Impact Report*, July 2021.) FEIR Section 5.2 presents the "Transportation/Circulation" analysis for the proposed project.

The FEIR incorporates (as Appendix G) a vehicle-miles-traveled analysis prepared by Fehr & Peers (F&P). (Reference: Fehr & Peers, Memorandum to Jonathan Frankel, New Urban West, *The Trails at Carmel Mountain Ranch CEQA Transportation Vehicle Miles Traveled (VMT) Analysis*, August 28, 2020, Updated November 13, 2020 and June 14, 2021.)

Fehr & Peers also prepared a Local Mobility Analysis based on guidelines established by the City of San Diego. That analysis, which represents a traditional traffic impact analysis addressing roadway and intersection operations, is presented as Appendix C to the FEIR. (Reference: Fehr & Peers, *The Trails at Carmel Mountain Ranch – Local Mobility Analysis*, December 18, 2020.)

In addition, FEIR Appendix D1 presents an evacuation plan (Reference: Dudek, *Conceptual Wildfire Evacuation Plan for Trails at Carmel Mountain Ranch*, June 2020.) and FEIR Appendix D2 includes an evacuation memorandum (Reference: Dudek, Memorandum to City of San Diego Planning Department, *Trails at Carmel Mountain Ranch Evacuation Planning*, June 25, 2021.)

Our review primarily focused on the technical adequacy of the FEIR appendices referred to above, including the detailed procedures and conclusions documented there. As explained below, these analyses are flawed in several respects and the conclusions in the FEIR are unsupported and contrary to the evidence.

TRANSPORTATION/CIRCULATION ANALYSIS & EVACUATION PLAN REVIEW

Our review of the transportation/circulation analysis and the evacuation plan for the proposed Trails at Carmel Mountain Ranch project revealed several issues that render the FEIR inadequate and that must be addressed prior to approval of the project by the City of San Diego. These issues are presented below.

Vehicle-Miles-Traveled Analysis

FEIR Section 5.2 and Appendix G purport to provide an analysis of the vehicle-miles-traveled (VMT) impacts associated with the proposed project. In reality, though, no such analysis was performed. Instead, FEIR Section 5.2 states (p. 5.2-9):

> *While modeling the Project in the SANDAG model would provide the Project specific estimate of VMT per Capita, it can be inferred from the land use characteristics of the surrounding census tracts and their VMT rates that it is unlikely the Project would generate VMT per capita of 15% below the regional average, even with TDM reductions.*

A similar statement is presented in the F&P memo presented in FEIR Appendix G (p. 11).

This approach is contrary to the requirements of the California Environmental Quality Act (CEQA). In fact, the F&P memo (p. 6) specifically states:

> *Environmental documents prepared under CEQA are required to include project VMT estimates . . .*

Similarly, the FEIR fails to conform to applicable City of San Diego standards. Again referring to the F&P memorandum (pp. 6 – 7):

> *The methodology and significance criteria for determining VMT transportation impacts in the City is* [sic] *contained in the City's TSM* [Transportation Study Manual]. *The TSM outlines the following process for performing analysis:*
>
> 1. *Determine if VMT analysis is necessary by comparing project characteristics to the City's screening criteria.*
> 2. *If the project does not meet any of the screening criteria, perform VMT analysis to determine the project's VMT.*
> 3. *Compare the project VMT to the significance criteria to determine if there is* [a] *VMT transportation impact.*
> 4. *If there is an impact, identify mitigation measures . . .*

According to FEIR Section 5.2 (p. 5.2-9) and the F&P memo (p. 11), the residential component of the proposed project failed to meet the City's adopted screening criteria, so the completion of a VMT analysis was required.

As we noted above, however, no VMT analysis was conducted. Instead, a conclusion was inferred from nearby land use characteristics. We are unable to identify any guidance within CEQA or the City's TSM allowing mere inference as a suitable substitute for analysis.

In fact, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (State of California, Governor's Office of Planning and Research, December 2018) specifically states (p. 6):

> *CEQA requires environmental analyses to reflect a "good faith effort at full disclosure." (CEQA Guidelines, Section 15151.) Thus, where methodologies exist that can estimate the full extent of vehicle travel from a project, the lead agency should apply them to do so.*

We believe that the approach taken in the FEIR falls substantially short of the required good faith effort, as no attempt was made to identify the "full extent of vehicle travel" from the proposed Project, even though the necessary methodology certainly exists.

In conclusion, the FEIR is deficient in that the VMT "analysis" fails to conform to the requirements of either CEQA or the City of San Diego. The FEIR must be modified to include an actual analysis of the proposed project's VMT, and the revised document must be circulated for further public review.

Evacuation Plan

The Dudek evacuation plan for the proposed project is provided in Appendix D1. According to that document, implementation of the proposed project would increase evacuation times by 15.6 minutes. The analysis includes no statement with regard to the significance of this estimated increase in travel time and, in fact, no standard is presented under which such a determination could be made.

Moreover, the travel time analysis is flawed, as we describe in detail below.

Flawed Traffic Volume Estimates

The derivation of the traffic volume to be accommodated in the course of an evacuation is described on pages 27 – 30 of the Dudek evacuation plan. As summarized in Table 2 (p. 30) of that document, the number of vehicles associated with the following components of the local community have been estimated:

- Existing Carmel Mountain Ranch,
- Trails at Carmel Mountain Ranch Community (i.e., the Project),
- Shoal Creek Elementary School,
- Highland Ranch Elementary School,
- Regional Commercial, and
- Industrial Uses.

According to Table 2, the total population to be evacuated is 32,329 persons, who are estimated to travel in 23,499 vehicles. We should note that the document text erroneously states the "worst-case" population as 15,544 and the number of evacuating vehicles as 11,021 on p. 29, which could be confusing and mislead readers.

Two obvious flaws have been identified in the traffic volume estimates, which served as a key element in the travel time analysis process.

First, the traffic estimate for each of the two elementary schools indicated there would be 12 buses and 30 staff vehicles per location. It is unclear whether the 12 buses would be sufficient to accommodate all students at the schools, including those who typically walk to school or are dropped off by parents, in addition to those who ride buses to and from school on a daily basis. Also, the estimate erroneously fails to account for parents who will drive to the school in an attempt to pick up their children prior to evacuating the area. It is shortsighted and unrealistic to assume this will not happen. (We also note that page 31 of the evacuation plan says there are three schools within Carmel Mountain Ranch, but only two have been accounted for in the analysis. If a third school exists, the analysis is further flawed.)

Second, the traffic volume estimates included in the analysis completely ignore other background traffic that will undoubtedly be present on the evacuation routes, consuming badly-needed roadway capacity. That is, the traffic demand estimates assume that only Carmel Mountain Ranch traffic and the uses listed above (i.e., schools, commercial, and industrial uses) will be using the designated evacuation routes. In reality, the three roads identified as the primary evacuation routes for the Project (Ted Williams Parkway, Carmel Mountain Road, and Camino Del Norte) are also likely to be the primary evacuation routes for areas other than the proposed Project and the remainder of Carmel Mountain Ranch. Consequently,

evacuation-related traffic from those other areas will also be present on the roadways during the critical time period.

These roads carry substantial traffic volumes even under typical, non-evacuation circumstances. As such, ambient traffic (i.e., not evacuation-related) will also likely be on those roads when an emergency is declared and evacuation commences. For example, Table 4 (p. 26) in the Local Mobility Analysis referenced above provides existing traffic volumes on roadways in the vicinity of the Project. Ted Williams Parkway carries almost 44,000 vehicles per day (VPD) between I-15 and Rancho Carmel Drive. Other segments of that road carry 28,500 – 32,200 VPD. Carmel Mountain Road carries almost 47,000 VPD between I-15 and Rancho Carmel Drive and 25,000 – 35,000 VPD elsewhere. No traffic volumes were presented for Camino Del Norte.

Those substantial volumes of traffic were improperly ignored in the analysis. Consequently, the analysis substantially underestimates the volume of traffic to be accommodated on the evacuation routes, as well as the resulting evacuation travel times. The effect of non-project traffic (both evacuation-related and ambient) on traffic flow along the three primary evacuation routes must be considered, and the results must be reported in a revised environmental document.

Flawed Travel Time Analysis

The evacuation plan states that (p. 27):

> *. . . the length of time it will take for an area to evacuate can be estimated by dividing the population by the average vehicle occupancy and then dividing by the roadway capacity (Figure 5).*

Figure 5 provides a mathematical representation of this calculation. In effect, this formula amounts to dividing the number of evacuating vehicles by the capacity of the road.

The problem is that this calculation does not provide a measure of evacuation time. In order to provide an indication of time (and, in particular, the travel time associated with an evacuation), there must be a distance component in the calculation. In other words, the calculation has to answer the question, "How long will it take me to get from Point A (e.g., my home in the proposed Project) to Point B (e.g., a safe location some distance from the wildfire)?" That distance component is lacking from the calculation.

In reality, the calculation described in the evacuation plan provides a volume-capacity (V/C) ratio for a given point on a given road. Referring to Table 6 – Project Evacuation Travel Timeframe (p. 36), we see, for example, that Ted Williams Parkway is claimed to have an "Existing Cond. Estimated Evacuation Travel Timeframe" of 2.28 hours. This value is based on dividing the claimed existing traffic volume of 7,033 vehicles by the assumed road capacity of 3,080 vehicles per hour (7,033 / 3,080 = 2.28). If we could be assured that these 7,033 vehicles would flow smoothly and uniformly past an arbitrary given point on Ted Williams Parkway, it would, indeed, take 2.28 hours for those vehicles to pass the designated point. But this is overly simplistic.

First, simply passing an arbitrary point on Ted Williams Parkway does not constitute an evacuation. Evacuation has not occurred until any given vehicle has reached safety, and this result does not reflect that. As noted above, a travel time estimate must have a distance component – i.e., how far must the vehicle travel?

In addition, vehicles do not flow smoothly and uniformly, especially in the course of evacuating during an emergency. Instead, sudden surges in traffic would occur during an evacuation; it is extremely unlikely that traffic would be evenly distributed over time. That is, there will be variable pulses in traffic demand, just as there are in everyday traffic flows. The document acknowledges this fact, as it described traffic surges as being "common" during the initial phase of an evacuation. (p. 34)

More importantly, as we pointed out above, the actual result of this calculation is a V/C ratio, so when the analysis divides 7,033 vehicles by a capacity of 3,080 vehicles per hour, what it is really finding is that the traffic demand is equivalent to 2.28 times the capacity of the road (i.e., it has a V/C ratio of 2.28). In other words, the traffic demand is 128 percent greater than the capacity of the road (i.e., more than twice the capacity).

Some might claim that it is inappropriate to compare the 7,033 vehicles to the hourly capacity of the road. If the traffic were spread out over time, they might say, the V/C ratio would be lower. However, the Dudek document (p. 32) specifically says:

> *Additionally, this analysis assumes that all existing populations within Carmel Mountain Ranch and Trails at Carmel Mountain Ranch are evacuating simultaneously.*

To offset this conservative assumption, though, the document goes on to say (p. 32):

> *Further, under the assumption that drivers of vehicles evacuating will choose or be directed to the least congested roadway, it is probable that vehicles would disperse evenly onto surrounding roadways.*

On the surface, this statement is confusing and possibly even contradictory. Will vehicles be on the least congested roadway or will they be dispersed evenly across multiple roads? The answer might be revealed in Table 5 – Evacuation Route Usage and Time Estimates, where Ted Williams Parkway, Carmel Mountain Road, and Camino Del Norte are all shown to carry 33.3 percent of all traffic under Scenarios 1 and 2 (i.e., Existing Conditions and Existing Conditions + Project). Table 6 – Project Evacuation Travel Timeframe (p. 36) also shows these three roads carrying an equal volume of traffic (7,033 vehicles) under those scenarios.

The information presented in Table 5 raises a question, however. That table presents vehicular volumes for five scenarios, not just the two referenced above. The other three scenarios are never described in the document, though. It is also unclear how these scenarios relate to the detailed traffic distribution assumptions described on pages 32 – 33 of the evacuation plan.

As noted above, Scenarios 1 ("Existing Conditions") and 2 ("Existing Conditions + Project") assume equal distribution of the traffic over the three designated evacuation routes (i.e., 33.3 percent on each). The subsequent evacuation time analysis results presented in the text on p. 36 reflect this assumption. The text incorrectly claims that addition of the Project traffic will increase the evacuation time by 15.6 minutes.

The other three scenarios each distribute the traffic over only two routes, so that 50 percent of the traffic would be present on two of the designated routes and no traffic would use the third roadway. These represent reasonably likely scenarios, as one of the routes might well be blocked by the wildfire or by downed trees or power lines. No analysis results are presented for these three evacuation scenarios, so the potential to have this higher traffic volume (i.e., 50 percent of the total) is never fully addressed in the evacuation time analysis. To rectify this deficiency, we have prepared Table 1, which summarizes the

analysis for all scenarios included in Table 6 in the evacuation plan. Note that our table correctly identifies the analysis results as being V/C ratios for each roadway, rather than time values.

Table 1
Volume/Capacity Analysis
All Evacuation Scenarios

Route	Scenario 1: Existing Conditions		Scenario 2: Existing + Project		Scenario 3: Existing + Project		Scenario 4: Existing + Project		Scenario 5: Existing + Project	
	Veh.[1]	V/C[2]	Veh.	V/C	Veh.	V/C	Veh.	V/C	Veh.	V/C
Ted Williams Parkway	7,033	2.28	7,833	2.54	11,749	3.81	0	--	11,749	3.81
Carmel Mountain Road	7,033	2.28	7,833	2.54	11,750	3.81	11,749	3.81	0	--
Camino Del Norte	7,033	2.28	7,833	2.54	0	--	11,750	3.81	11,750	3.81

Notes:
[1] Vehicles; Estimated traffic volume, per Dudek Table 6 – Project Evacuation Travel Timeframes, p. 36
[2] Volume/Capacity

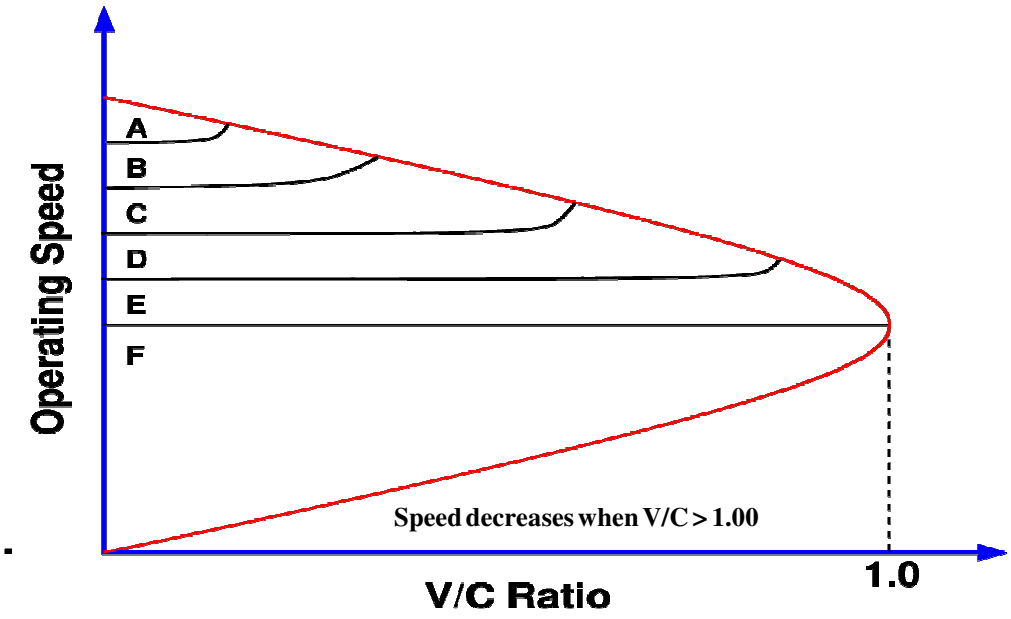
As shown in Table 1, in any scenario involving the use of only two roads (i.e., Scenarios 3 – 5), the projected V/C ratio is 3.81, based on estimated traffic volume of 11,749 or 11,750 vehicles traveling on roads having capacities of 3,080 vehicles per hour. In other words, the traffic demand is 3.81 times the capacity of the road.

Not shown in Table 1 is the result if two of the roads are unavailable and only one route is available for evacuation. In that case, all 23,499 vehicles would be attempting to use a road with capacity of 3,080 vehicles per hour. The resulting V/C ratio would be 7.63; that is, traffic demand during an evacuation would be equal to 7.63 times the road's capacity. One doesn't have to be an expert in traffic operations to recognize that this represents an untenable situation. Unfortunately, the evacuation plan completely ignores this possibility and further, never addresses the findings for Scenarios 3 – 5.

To provide additional perspective regarding traffic operations, the quality of flow on a road is described in terms of "level of service" (LOS), which ranges from LOS A (free-flowing conditions) to LOS F (highly congested; V/C > 1.00). V/C ratios of 2.28, 3.81, and 7.63 indicate operation substantially in excess of the road's capacity and, by definition, represent LOS F. According to the *Highway Capacity Manual* (Transportation Research Board, Sixth Edition, 2016, p. 12-18):

> *Oversaturated conditions are represented by LOS F. LOS F describes unstable flow. . . . breakdown occurs when the ratio of existing demand to actual capacity, or of forecast demand to estimated capacity, exceeds 1.00.*

Unstable flow will be manifested in high levels of congestion and stop-and-go traffic, which will increase not only the time needed to evacuate, but also the levels of stress and anxiety for evacuees. The following graphic illustrates the relationship between LOS and travel speed. As shown, when a roadway reaches LOS F (i.e., V/C > 1.00), the operating speed rapidly declines.



Referring again to Table 6 – Project Evacuation Travel Timeframe (p. 36), we see that addition of the estimated 800 project-related vehicles to Ted Williams Parkway would increase the V/C ratio from 2.28 to 2.54, resulting in greater instability in traffic flow and further reduced travel speeds. This has not been accounted for in the analysis, even though the evacuation plan acknowledges the current and future existence of traffic congestion in the vicinity of the Project. Specifically, it says (p. 49):

> *A Trails at Carmel Mountain Ranch and Carmel Mountain Ranch collective, community-wide evacuation would include congested roads in its existing condition that are improved, but still congested, with the Trails at Carmel Mountain Ranch Project. . . . Therefore, even though the additional evacuation road to the southeast through the Trails at Carmel Mountain Ranch Project and the northern route enhancement improves the evacuation process substantially from the existing Carmel Mountain Ranch configuration, there would likely still be congestion and delays.*

Incomplete Evacuation Time Estimates

As we described above, the travel time estimates in the Dudek evacuation plan are incorrect and, in fact, do not represent travel times at all. Beyond that, they are incomplete, as they ignore critical components of the evacuation process. The first footnote to Table 6 – Project Evacuation Travel Timeframes (p. 36) states:

> *Includes "wheels rolling" where all persons have left their home.* ***Does not include notification, mobilization and travel out of the area.*** [Emphasis added]

"Notification" represents the time required for public officials to make residents aware of the need to evacuate. "Mobilization" represents the pre-evacuation preparation period. It is particularly critical with respect to fires that start in close proximity to the proposed Project.

The failure to provide information with regard to how long it will take evacuees to be informed of the emergency, to prepare to leave home, and to travel to safety is a substantial deficiency in the evacuation plan, to say the least. Even if the remainder of the analysis had been correctly prepared, we believe this deficiency renders the entire analysis useless, as potential evacuees are left with no indication as to how long it will take to get from home to safety.

Failure to Acknowledge Other Detrimental Factors

Finally, the evacuation plan fails to acknowledge a number of other potential problems that might occur along the evacuation routes. Among those potential problems are:

- Fires that prevent safe passage along planned evacuation routes;
- Fire evacuations during peak traffic conditions or when large events are occurring;
- Blocked traffic due to accidents or fallen tree(s) or power pole(s);
- The possibility that the road will be obscured by smoke or other fire-related factors, such as visible flames or embers;
- The effects of trucks, recreational vehicles, or vehicles towing trailers in the evacuating traffic stream; and
- The emotional state of the evacuees, which could lead to irrational or unpredictable behavior by drivers.

Wildfire Impacts

Wildfire impacts associated with the proposed Project are addressed in FEIR section 5.19. Of particular interest is impact Issue 2, which is described as (p. 5.19-13):

> *Issue 2: Would the proposal expose people or structures to significant risk of loss, injury, or death involving wildland fires, including when wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Contrary to the FEIR's finding of a less that significant impact for the proposed Project, the substantial deficiencies in the Project's evacuation plan clearly subject both people and structures to significant risks. Therefore, we believe this constitutes a significant impact that was not identified in the FEIR. As such, the document should be revised and circulated for further public review.

Conclusion

In conclusion, the evacuation plan reflects a failure to accurately and completely address the feasibility of safely implementing an emergency evacuation. No credible estimates of the amount of time needed to implement a full evacuation of the Project site have been provided. Although an evacuation plan was prepared for the Project, it is sufficiently flawed that no reasonable level of certainty exists that residents and visitors to the Project site would be able to evacuate safely. Consequently, we believe that the DEIR should have identified a significant impact with respect to Wildfire Issue 2.

CONCLUSION

Our review of the transportation/circulation analysis and the evacuation plan completed with respect to the proposed Trails at Carmel Mountain Ranch project revealed a number of serious deficiencies

regarding the conclusions documented in the Final Environmental Impact Report. In particular, the analysis of Project-related vehicle-miles-traveled is thoroughly deficient, as the Project VMT value has not been identified, as required under CEQA. Further, the evacuation plan developed for the Project is sufficiently flawed that it provides no assurance that residents and visitors would be free of risk of loss, injury, or death, as required by the pertinent significance criterion.

I hope this information is useful. If you have questions concerning any of the material presented here or would like to discuss it further, please feel free to contact me at (906) 847-8276.

Sincerely,

GRIFFIN COVE TRANSPORTATION CONSULTING, PLLC

Neal K. Liddicoat, P.E.
Principal