January 16, 2008

Chairman Patrick Kruer
ATTN: Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

RE: Response to TCA and Caltrans Review of SMI Report

Dear Chairman Kruer and Commission Members:

This memorandum reviews the comments made in several recent documents regarding the Smart Mobility report, An Alternative to the Proposed Foothill South Toll Road, dated September 2007. First, some general discussion that applies to a number of comments is presented, and following that are specific responses to comments where appropriate.

Revisions to Report

Many of the comments in all of documents note that for several segments of I-5, our assumptions on the number of lanes differs from the AIP alternative that was studied by the TCA. The revised report makes these corrections, so that the number of lanes for each segment of I-5 matches that studied by TCA. In addition, there are several other locations where we have revised our design concepts to reflect new information we obtained, and/or comments from reviewers. The revised report incorporates two new interchanges from TCA's AIP alternative, and is informed by several ongoing local studies of I-5 interchanges that we were not aware of at the time of our initial report. Therefore, many of the comments in the letters are addressed in the revised report.

Level of detail in AIP-R alternative.

Our report presents planning level design concepts to consider for reducing the property displacements associated with the AIP alternative. The report recommends numerous refinements to the AIP alternative that will greatly reduce displacements. These design concepts are based on the engineering information available in the TCA reports and reflect our engineering judgment of engineering designs that have worked in similar settings. These concepts have not been pulled out of the air, but rather are based on careful review of all the information that was made publicly available by TCA and Caltrans, as well as site visits to each location and observations of local conditions. However, we have not conducted the level of engineering that would produce the detail that is requested in the Caltrans letter. Caltrans is requesting a level of detail in design that would be required for them to grant approval to these designs, which is premature at this time. Conducting this more detailed design would require obtaining full topographical modeling for the entire project areas, property boundary data, and detailed design hour traffic volumes for each turning movement. Given the limited publicly available information, and the limited resources of our clients, it is simply not feasible to conduct full engineering studies. This engineering work should be conducted by a public agency with the resources, ability, and intention to carry out this work.

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Safety and Design Standards

A highway engineer's first responsibility is to consider safety. Our state and federal governments have adopted highway and road design standards that provide a basis for safe design, and the normal practice of highway engineers is to design facilities that comply with these standards. However, these standards by no means guarantee safety. Rather, they represent the culmination of research and our understanding of the relationship of highway geometry and accidents. Unfortunately, this research is far from providing a complete explanation and understanding of the highway geometric design features that can lead to a higher than normal accident rate. Many roads that are designed "by the book" to these standards are still unsafe. Conversely, many roads that fall far short of the modern design standard are actually quite safe when you consider the actual accident rates.

Many of the comments in the Caltrans letter point to features that exist in the I-5 corridor that do not meet the current design standards. However, that does not mean that these features are not safe. The design process often includes preparing a design for improvements that follows the design guidelines as closely as possible at the early stages. This step was essentially completed by TCA in their initial design of the AIP alternative. If, as is often the case, the impacts of such improvements are unacceptable, or the costs are unreasonable, it is appropriate to consider a broader range of alternatives, even if some of them do not fully meet all of the design guidelines. Existing sub-standard geometric features, such as ramps with more curvature than is currently recommended in the standards, should be evaluated on a case-by-case basis to see if they are in fact functioning safely. If they do not show elevated accident rates, than it may be appropriate to maintain that feature and apply for a waiver from the design guidelines. These waivers are reviewed carefully and critically, and must be supported by detailed analysis of actual accident data.

This type of iterative design process is extremely common when undertaking highway improvements in existing urbanized areas, as it is often nearly impossible to design facilities to the full standards without unreasonable impacts. It is not uncommon for highway agencies to issue waivers to the design standards, but they must be justified by unreasonable costs or impacts to comply with standards, and strong evidence that they will operate safely. Agencies do not take this process lightly, and any non-standard features are subjected to high levels of scrutiny and analysis. In the end, however, non-standard-yet safe-features are often approved because the choices are either that or live with a deteriorating or congested infrastructure.

An local example of Caltrans recently approving a design that required an exception to one of their "mandatory" standards is for the Ortega Parkway interchange in San Juan Capistrano. The Caltrans letter criticizes our concept because it does not meet the mandatory standard for minimum distance between an interchange and a local street intersection, which is 125 meters. However, Caltrans recently approved several alternatives for reconstruction of this interchange that include distances of only about 60 meters. It is simply not practical to comply with these standards if they mean elimination of entire local street networks. When it becomes a choice of accepting a non-standard feature with appropriate documentation of safety consideration, or do nothing to improve a congested intersection, non-standard features are very often accepted. The reality is that, while our design standards are lofty goals, and are generally attainable when constructing a new road in an undeveloped area, they are often simply not achievable in the real world. In these cases, engineers must exercise careful study and scrutiny of different design alternatives, and select an improvement alternative that will provide for safe and efficient operations within the physical constraints of an urban environment, and the financial constraints of stretched highway budgets.

Caltrans Letter from Cindy Quon

In this letter, dated January 7, 2008, several general points are contained within the letter, as well as more detail in the attachment. The letter states several times that our report does not contain sufficient information on a number of details, such that Caltrans cannot "support the proposed design refinement or conclusions". Our report was never intended to provide sufficient engineering information to gain Caltrans approval. Rather, our report is intended to provide information to policy makers and decision makers on the great potential for refinement of the AIP alternative to greatly reduce the property impacts, and that the decision to reject this alternative due to property impacts was based on flawed information or incomplete designs. Our report offers support for the conclusion that the AIP alternative should be pursued as the least environmentally damaging practicable alternative. The responsibility of conducting the engineering work for refined AIP alternative rests with an agency that is responsible for highway development, i.e. Caltrans.

The attachments to the letter contains numerous specific items. Many of these are duplicative or redundant, and the following paragraphs respond to these comments.

1a. El Toro Interchange-Our revised report does not include the design proposed in the initial report, but rather adopts the TCA's plans for this interchange. Therefore, these comments do not apply to the revised report.

1b. La Paz Interchange-this comment pertains to the lack of design detail which is not available in our report. This general topic was discussed above.

1c. Crown Valley Interchange-our revised report, dated January 2008, offers more detailed description of this interchange, which addresses comment ii. The remaining comments pertain to the lack of design detail which is not available in our report.

1d. Ortega Highway Interchange-comments i – iii pertain to the lack of design detail which is not available in our report. Comment iv regarding distance between ramps and local road intersections is again unclear, as the existing distances are 60 and 110 meters (compared to the minimum standard of 125 m). Further, Caltrans has recently approved a number of alternatives for reconfiguration of this interchange that maintain these shorter distances. (see http://www.sanjuancapistrano.org/Index.aspx?page=398)

1e. Pico Interchange-These comments all pertain to the lack of design detail which is not available in our report.

2. SPI Level of Service-Due to the incomplete information on peak hour traffic turning movements in the TCA report, we have not conducted level of service analyses. It is also not clear how Caltrans developed these conclusions regarding ramp levels of service without the detailed traffic data, although they appear to be not considering our concepts include two lane on-ramps, which should provide sufficient capacity for the on-ramp volumes. The remaining comments regarding ramp metering design should be addressed in subsequent stages of engineering.

3. ParClo Interchanges-This comment merely describes some of the advantages of Par-Clo interchanges. I do not disagree with these statements; however, if a Par-Clo design results in unacceptable property impacts, as was concluded by TCA, then other options should be evaluated, such as single point diamond interchanges.

4 Single Point Interchanges-This comment describes the issues that should be considered for Caltrans review Single Point Interchanges. Our report does not include this design detail, but our conclusion is that single point interchanges are worthy of consideration and further design efforts at these locations on I-5 in order to avoid the property impacts identified by TCA with their proposed ParClo designs.

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5. I-5 Lanes in the AIP-This comment notes our original report contains an incorrect assumption for the number of lanes in several segments of I-5, that do not match the original AIP lane configuration. This has been corrected in our revised report, dated January 2008.

6. El Camino Real Interchange-This comment pertains to our proposed closing of the ramp at El Camino Real. This comment fails to consider that TCA also proposed closing this ramp in their proposed reconfiguration of this interchange, and that the federal guidelines will still be met because there is an existing second ramp about 200 meters further on El Camino Real that provides for return movements than what TCA's plan provides.

7. Detention Basins-The revised report includes changes to several EBD's that were proposed on sites with new development or steep slopes.

8. Minor Property Takings-Our report notes that additional minor takings may be required (i.e. small portions of property only, with no buildings), and to further identify these locations will be possible after more detailed engineering design.

9. Level of Design Detail-This comment is repetitive with several other comments addressed above, and again pertains to the lack of design detail which is not included in our report.

10. Cost Estimates-The cost estimates were calculated with 2005 data in order to be consistent and more comparable to the cost data in the TCA report. If the costs were updated to reflect the current real estate market, they would be less comparable to the TCA cost estimates.

11. I-5 Right of Way-This comment identifies several locations along the I-5 corridor where there is not sufficient right-of-way to accommodate the proposed widening of the AIP alternative. In general, we agree with this conclusion, but note that these are the locations where we have noted that property takings or minor property impacts would result.

12. Arterial Lane Reductions-The revised report only recommends a reduction in lanes for one arterial, El Camino Real. The others were not necessary to avoid displacements. Our proposals for lane reductions were based on a review of the traffic volumes reported in the SEIR, and appear feasible. A comprehensive design process should be conducted in which the trade-offs between rigidly following the design standards, which is accompanied by high impacts, are compared with alternatives which are found to be safe based on detailed study, but require some alterations.

13. Construction Costs-Our report did not include construction cost estimates, as it is premature until more detailed engineering is conducted. We provided estimates of property acquisition costs as this was the primary reason for rejection of the AIP alternative.

14. Orange County Long Range Plan-Our statement in the report is intended to show that funding of the AIP alternative is possible through the regions Long Range Transportation Plan. Further, the lack of funding of an alternative is not an appropriate consideration for an environmental review and permitting process. Funding allocations are adopted annually based on project needs.

15. California Highway Design Manual-I agree that the California Highway Design Manual standards should be applied as engineering work progresses on this alternative. However, if unacceptable impacts are found, the design process should not simply grind to a halt. Rather, more refined studies on the safety and efficacy of alternative treatments should be conducted. This is a common process for projects in urbanized areas, where fully implementing the design manual standards would result in excessive displacements.

16. Ortega Interchange-Our revised report includes more information on the reconstruction of the Ortega Interchange. The AIP alternative could be revised to incorporate the locally preferred alternative for interchange, once that has been selected.

17. Design Level of Detail-This comment is duplicative of detailed comments in item 1 above. Again, this pertains to our report not including these detailed engineering analyses. More detailed engineering is required for the AIP-R alternative to develop this more detailed information.

18. Single Point Interchange-I agree with this statement, however, this is not the ONLY use of a single point interchange.

19. Modeling of the AIP-The performance metrics cited in our report are based on regional modeling of the AIP alternative. Regional travel demand models are not sensitive to details such as interchange types. Rather, they consider the total number of lanes, travel speeds and times, and facility type. Therefore, the regional modeling results still apply to the AIP-R alternative.

20. Modeling of the AIP- We believe that good transportation modeling practices for major transportation projects should include feedback in order to document induced and indirect impacts. The FHWA, EPA and other agencies support this position. The TCA modeling for the SEIR did not include feedback.

21. Arterials-No response needed.

22. Orange County Long Range Plan -This comment is irrelevant to our conclusions, because we are relying on the modeling results from the TCA for the AIP alternative, which obviously did not include the toll road. Traffic data available in the TCA SEIR reports was used for the development of these design concepts. Data from the Orange County Long Range plan was not used in our report.

Response by the Corridor Design Management Group

The TCA response to the Coastal Commission Staff Report contains a detailed review our study. Many of the issues that they have raised in this review are addressed in the revised report, such as the different number of lanes and other discrepancies with the TCA AIP alternative. Below is our response to statements in the report that require clarification or rebuttal.

p. 1: II.A.1 Lane Configuration – Our revised report corrects the discrepancies noted in this section, so that our definition of the refined AIP alternative matches the original TCA proposed lane configuration.

p. 3. II.A.2. Interchanges- The revised report includes these new proposed interchanges.

p. 3 II.A.3 Frontage Roads-The revised report no longer recommends narrowing of Avenida de la Carlota, Camino Capistrano, and Rancho Viejo Road, as displacements were not noted along these corridors (other than for the new interchange noted above). However, we maintain our recommendation to reallocate the right of way of the southernmost portion of El Camino Real in San Clemente. The traffic volumes on this segment are lower than reported by TCA (between 4,000 and 8,000, not 17,000 as stated by TCA). These volumes can be adequately served without congestion on a two-lane road with appropriate turning lanes. This reallocation will save high numbers of displacements, and is therefore worthy of consideration of a design exception, as noted in the discussion at the beginning of this memorandum. The Orange County Highway Design Manual sets forth desirable standards. However, in cases where complying with these standards would result in unacceptable impacts, exceptions to the standards, with appropriate justification, can be considered.

p. 5 II.A.5. Context Sensitive Design-The TCA touts their "collaborative" design approach, and seems to imply that they followed the principles of context sensitive design. When one views some of the interchange design concepts such as that for El Camino Real in San Clemente, it is apparent that little attention was paid to the context of the community, and no consideration of alternative was made. Further, it begs the question as to whether or not all members of the collaborative were aware that no alternative design concepts

reduce impacts were investigated. A further point on this page relates to the ongoing interchange studies at Ortega, Pico and El Toro, which our revised report now incorporates.

p. 6 II A.6 Single Point Interchanges-The concepts presented in our report have not undergone detailed analysis and design, as the data required has not been made available by TCA, such as design hour turning movements. Therefore, the need or desirability of a free right turn cannot be judged until this analysis is conducted.

p. 7 II. A. 6 El Toro Interchange-The revised AIP-R does not proposed a single point interchange for this location, and instead adopts the same plan for this interchange as proposed in the AIP by TCA.

p. 9 B. Arterial Right-of-Way-While not all of the property adjacent to arterials is publicly owned, it is generally part of a landscaped buffer, and would not affect private property by widening.

p. 9 C. Topography-We are well aware of the topography of the area from our site visits. However, topographical survey data has not been made available by TCA, so it is not possible to address the topography in detail. However, a 10-meter buffer around proposed basins is provided to allow for modifications to address slope or other contingencies that might arise at the final engineering stage. If the buffer were not sufficient, a retaining wall could be used, for example. There are numerous examples on the highways and arterials in Orange County of projects that use retaining wall to address elevation differences, and these tools can be applied to the AIP-R.

p. 16 III.A. Lane Configurations – The AIP-R revised report correctly reflects all of these lane configurations.

p. 19 III. B. Frontage Roads – The revised AIP-R does not contain recommendations to narrow Avenida de la Carlota, Rancho Viejo, or Camino Capistrano.

p. 26 III.B. El Camino Real – The TCA incorrectly states that the traffic volume is 17,000 on the portion of the road for which we are recommending reallocation. Again, we recommend a full design iteration process in which the impacts for adhering to the Orange County Standards is considered and weighed against the implications of a narrower cross section. While portions of El Camino Real are heavily traveled, this portion is essentially a "dead end", and does not play a vital role as an alternative, as it ends just beyond this segment, and connects to a narrow two lane road.

p. 29 IV.A. Traffic Analysis – The TCA states that the AIP does not bring the level of service to "E" in all sections. Again, this falls into the category of design standards discussed above. However, it should also be emphasized that TCA's proposed toll road also does not bring I-5 to a level of service "E", and in fact, the AIP is more effective at reducing traffic congestion on I-5 than the toll road alternative.

p. 29-30 IV.B. Roadway Design – This section contains highly distorted discussion of design guidelines that seem to suggest that any improvement that does not adhere to "mandatory" standards is not safe. In fact, even "mandatory" standards are subject to exceptions if it is found that adhering to them results in unacceptable impacts and unreasonable costs, as long as the proposed solution can be shown to function safely. In the case of the curve on I-5, while it would be desirable to reduce the curvature to meet standards, doing so will have extraordinary impacts on many residential units. If the existing feature is functioning with reasonable safety, it can be considered for a design exception.

p. 30 IV.B. El Camino Interchange-The AIP-R revised concept addresses these comments.

p. 34 IV.B. Avenida Pico Interchange – The TCA characterizes design features of the SMI proposal for this interchange as "unsafe", without any evidence. Again, this is a design concept, and it requires consideration of many of the factors mentioned in TCA's comments through the subsequent design process. These types of interchanges have been designed and operate safely in other locations, and with appropriate consideration of safety for vehicles and pedestrians throughout the design process, a safe design can result.

p. 38 IV.B. Ortega Highway Interchange – The Par-Clo proposed by TCA ignores the ongoing local study of this interchange, which is acknowledged in an attachment to the SEIR. They note that their plan is an "operationally superior" solution, but the design process for these improvements reflects that in reality, the ideal engineering solution is not always acceptable to the community, and we need to strive to find balance between traffic needs and impacts in our solutions. The AIP-R seeks that balance in our design concepts to avoid local property impacts. The TCA's design of the AIP alternative did not.

p. 41 IV.B. Crown Valley Parkway – The revised AIP-R report includes changes to the proposed concept for this interchange.

Orange County Public Works Briefing Paper

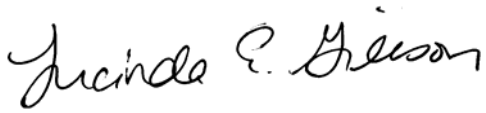
This paper primarily notes that full engineering analysis has not yet been conducted for the AIP-R. However, it is interesting to note their acknowledgment of the need to consider context and community impacts in the design process, in citing the following FHWA guidance:
"for each potential project, designers are faced with the task of balancing the need for the highway improvement with the need to safely integrate the design into the surrounding natural and human environments."
I agree that it is appropriate to balance the need for improvement with the needs of the communities. That is the philosophy followed in our recommendations of the AIP-R alternative, and I find no evidence that TCA considered this balancing approach in refinement of the AIP alternative.

It should also be noted that the revised AIP-R alternative does not include grade separations at the arterial intersections as noted, as they were found to be unnecessary after a review of the TCA traffic forecasts for these intersections. The widening of the arterials themselves can be accomplished without displacements if designed carefully, and if retaining walls are used in appropriate locations to avoid impacts. The recent widening of Crown Valley provides examples of the techniques that can be applied.

The need for changes in local plans and permits should be addressed in subsequent stages of design. These types of changes are very common in road improvement projects.

I hope the foregoing discussion addresses these comments. Please feel free to contact me if I can be of any assistance in your review of our study.

Sincerely,



Lucinda E. Gibson, P.E.
Smart Mobility, Inc.

EXHIBIT 13
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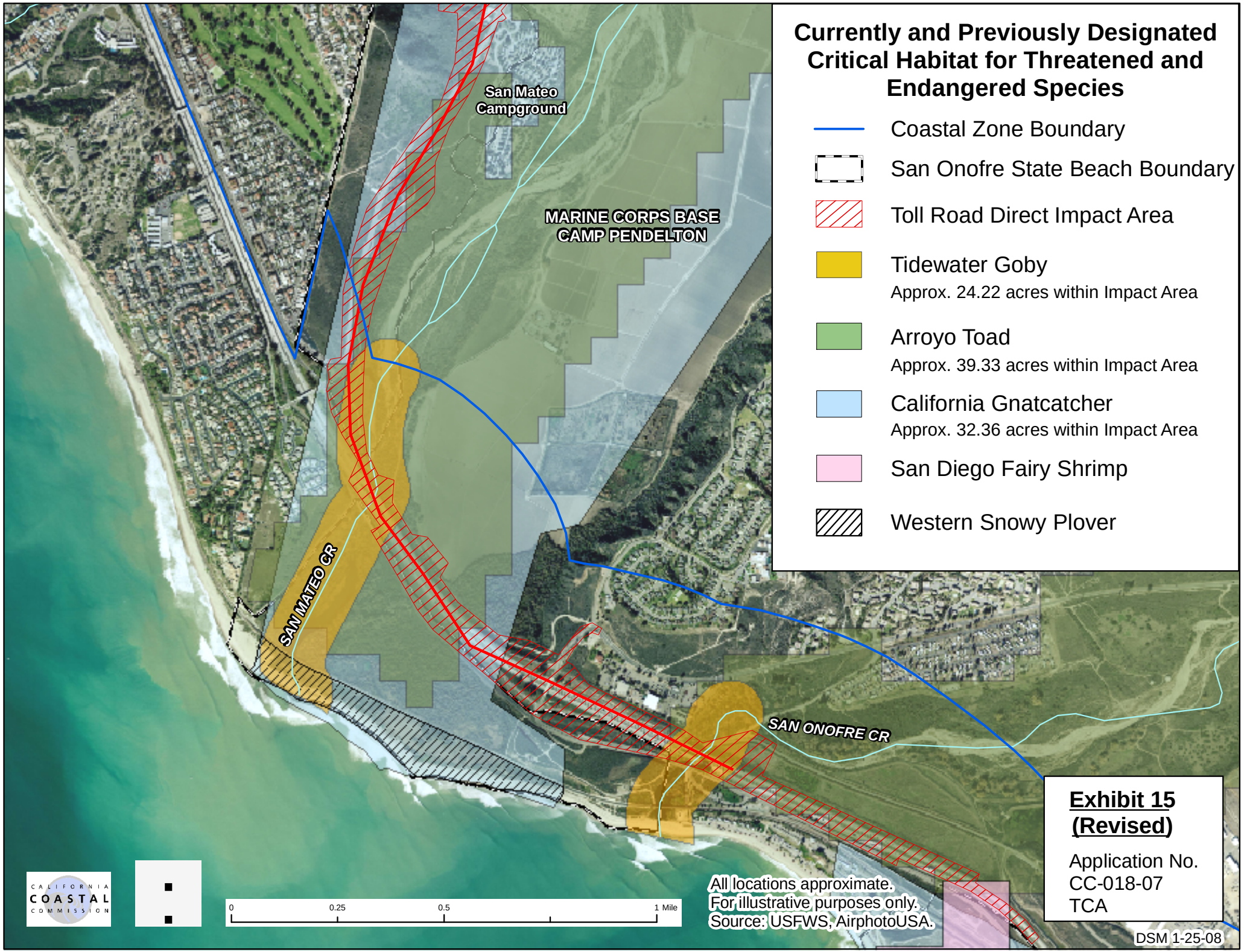
TCA

Exhibit 14

TCA's Response to CCC Report
(508 pages)

Available online at:
http://documents.coastal.ca.gov/reports/2008/2/W8b-2-2008-a14.pdf


Currently and Previously Designated Critical Habitat for Threatened and Endangered Species
Coastal Zone Boundary
San Onofre State Beach Boundary
Toll Road Direct Impact Area
Tidewater Goby
Approx. 24.22 acres within Impact Area
Arroyo Toad
Approx. 39.33 acres within Impact Area
California Gnatcatcher
Approx. 32.36 acres within Impact Area
San Diego Fairy Shrimp
Western Snowy Plover
San Mateo Campground
MARINE CORPS BASE CAMP PENDELTON
SAN MATEO CR
SAN ONOFRE CR
Exhibit 15 (Revised)
Application No. CC-018-07
TCA
All locations approximate.
For illustrative purposes only.
Source: USFWS, AirphotoUSA.
0
0.25
0.5
1 Mile
CALIFORNIA COASTAL COMMISSION
DSM 1-25-08