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January 22, 2007

Chairman Patrick Kruer
ATTN: Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94108

Subject: Foothill Transportation Corridor-South Runoff Management Plan Supplemental Documentation Review and Comment

Dear Chairman Kruer and Commission Members,

Philip Williams & Associates (PWA) has been asked to review the Transportation Corridor Agencies' (TCA) Foothill Transportation Corridor-South (SR-241) Runoff Management Plan Supplemental Documentation (RMP), dated November 6, 2007 which was submitted to the San Diego Regional Water Quality Control Board on January 4, 2008. The SR-241 RMP is intended to demonstrate that the proposed SR-241 has a stormwater management strategy in place that will mitigate all water resource related impacts associated with the proposed SR-241. However, the proposed SR-241 RMP does not adequately address potentially significant impacts related to hillslope erosion, scour and erosion of small drainage channels between the proposed SR-241 and San Mateo Creek and Cristianitos Creek, and the resulting increased delivery of sediment to San Mateo Creek. Ultimately, the inadequacies in the proposed SR-241 RMP could lead to potentially significant impacts on the ecology of the existing lagoon at the mouth of San Mateo Creek and surf resource at Trestles.

**Existing Conditions and Proposed SR-241**

The proposed SR-241 represents new construction of a 4 to 6 lane highway in the San Mateo Creek watershed, one of the last undeveloped watersheds draining to the Pacific Ocean in Orange County. The mouth of the San Mateo Creek watershed supports the Trestles surfing area, an internationally renowned surfing resource.

Closest to the mouth of San Mateo Creek, the proposed SR-241 would pass through the core of the relatively less disturbed and naturally functioning portions of San Mateo creek watershed on the west side of the valley. Further inland, the proposed SR-241 would pass through very steep, rugged terrain along Cristianitos Creek, which drains to San Mateo Creek. The steep terrain along Cristianitos Creek includes steep drainage channels which are very sensitive to increased runoff. The proposed highway will have major impacts to 20 individual subwatersheds that currently have little development and related

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impervious area and drain to small channels that convey runoff to San Mateo Creek and Cristianitos Creek. These sand and silt dominated watersheds and related stream systems have developed in equilibrium with the existing rainfall-runoff dynamics. These fragile watersheds are prone to instability and rapid degradation with relatively minor changes in runoff patterns caused by changes in land use. Introducing a new highway through these undeveloped watersheds is likely to result in drastic impacts to both sediment production and channel habitat structure. Thus, the proposed SR-241 with the associated 41 million yards of cut and fill, 530 acres of wide exposed cut and fill slopes, and over 136 acres impervious surface could easily cause potentially significant impacts in the San Mateo Creek watershed.

San Mateo Creek is thought to be a transport limited system i.e. the total volume/mass of sediment delivery is limited by transport. The existing sub-watersheds deliver a sensitive balance of fine gradient sediments and coarse gradient sands and cobbles to the mouth of San Mateo Creek in response to wide range of rainfall-runoff events that affect the region. If delivery of fine-grained sediment to the creek channel increases, coarse cobbles will tend to drop out depositing along the creek channel, and delivery of cobbles to the mouth of San Mateo Creek will decrease.

**Surf Resource**

The world-class surf break at Trestles is dependent on fan shaped, near-shore sediment/cobble deposits that exist at the mouth of San Mateo Creek. Local surfers have observed that discharges from San Mateo Creek can affect the bottom contours and temporarily improve surf conditions. Hence some movement of the bottom contours and sediments occur in response to creek discharge. Recent research indicates that the movement of cobble under wave action is greatly affected by the amounts of finer sediments that fill the voids in the cobble. The response of the surf break to creek discharges, the location of the break at the mouth of San Mateo Creek, and the deltaic, fan shape of the contours indicate a nexus between the creek discharge of water and sediment and surfing conditions (PWA, 2006). Thus, Trestles is dependent on both cobble delivery and the ratio of finer sediments to cobbles. A change in the delivery coarse cobble material or of ratio of fine-grained sediment to cobble can result in a significant impact to Trestles as the cobble bed breaks down over time.

It is no coincidence that one of the world's best surfing resources exists at the mouth of one of the last undeveloped watersheds in Southern California. When analyzing the significance of a potential impact, the quality of the existing conditions must be taken into account. A project such as SR-241 that proposes to locate a large toll road in an undeveloped watershed that supports a world-class surfing resource must be held to a higher standard than the typical highway project within an already developed urban/suburban watershed that does not support a sensitive world-class surfing resource. Typical Best Management Practices (BMPs) may not be adequate to protect the fragile canyons and steep terrain along San Mateo



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Creek and Cristianitos Creek from erosion. If the cobbles beds that support Trestles are destabilized through altered sediment delivery, the resulting impact will likely be irreversible and impossible to mitigate. While the project proponents may be convinced that there will be no impacts, we are not convinced and rather expect that the surf break will be substantively degraded over time.

**Proposed SR-241 Runoff Management Plan**

The SR-241 RMP presents the TCA's strategy for managing stormwater runoff along the proposed SR-241 corridor. The Runoff Management Plan includes:

- Routing runoff generated upgradient of the highway and along cut and fill slopes under the highway in culverts without any treatment BMPs to trap eroded sediments.
- Flow splitters to route large peak flows generated on the impervious highway directly into existing drainage channels while routing smaller frequent flows generated on the impervious highway to treatment control BMPs.
- Treating smaller frequent flows generated on the impervious highway with treatment BMPs including Sand Filter Basins, Extended Detention Basins, Vegetated Swales and Vegetated Strips intended to address water quality and hydrograph modification impacts.
- Stabilized outlets for flow splitters, treatment control BMP discharge pipes, and bypass culverts stabilized by riprap dissipators.
- Construction BMPs including mulches, erosion control fabrics, silt fences, fiber rolls, etc. to trap eroded sediments during construction.

While these approaches are typical for new highway construction in California, they are not likely to be adequate to protect the undeveloped San Mateo Creek watershed and the Trestles surf break from significant impacts related to destabilization of existing channels and increased sedimentation caused by the proposed SR-241.

**Offsite Drainage: Upgradient Areas and Cut/Fill Slopes**

The proposed SR-241 RMP identifies runoff generated in areas upgradient of the proposed highway and along the cut and fill slopes created for the proposed highway as "offsite" runoff. This runoff will be routed in a series of cross culverts and longitudinal ditches under the proposed highway and discharged to existing drainage channels that currently route runoff to San Mateo and Cristianitos Creeks. The use of down drains, longitudinal ditches, and cross culverts will help to limit the erosive effects of sheet flow from upgradient areas on the fragile cut and fill slopes. However, these drainage control measures will also tend to limit infiltration along the drainage pathway and speed the delivery of runoff to down gradient discharge channels. This will alter the timing of runoff delivery and potentially result in small increases in runoff flow rates and volumes in the down gradient channels. While the proposed rip rap



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dissipators are likely to limit erosion at the outlets of the bypass cross culverts, beyond the rip rap dissipators, any increases in flow rates are likely to result in channel degradation downstream of the proposed SR-241 given the fragile and sensitive nature of the existing down gradient channels.

These "offsite" areas include the large cut and fill slopes required to route the proposed highway through the steep and rugged terrain along the proposed alignment. The cut and fill slopes are extensive including about 530 acres of disturbed land with cuts as wide as 700 to 800 feet from the highway and up to 250 feet high. In general, these slopes are designed with benches between relatively steep slopes (3H:1V) about 75 feet high. The SR-241 RMP does not provide a detailed description of how these large cut and fill slopes will be stabilized. The RMP indicates that erosion is to be minimized by the use of Source Control BMPs including: hydroseeding, ground cover, mulch, longitudinal ditches, down drains. These Source Control BMPs (primarily hydroseeding) can be expected to be, at best, moderately effective. The steep slopes (3H:1V) are considered the practical limit for stabilization through revegetation. With the top soil removed from the existing surface and the variable local rainfall patterns, establishing native vegetation through hydroseeding will be difficult on these slopes.

There are no treatment control BMPs proposed to either control runoff flow rates and volumes or to trap sediments eroded from the "offsite" areas. As noted by the Coastal Commission Staff, the TCA has had problems with revegetation efforts on previous projects. At the San Joaquin Hills Transportation Corridor, the TCA experienced slope failures including 10 feet deep cuts in a 35 acre area "stabilized" through revegetation (Coastal Commission Staff, 2007). By comparison, the proposed SR-241 requires revegetation to stabilize about 530 acres of cut and fill slopes.

TCA's contention that "there will not be a new source of 'fine sediment' associated with the project" cannot be substantiated with the proposed BMPs included in the SR-241 RMP. The likely result is that the proposed revegetation efforts will be moderately successful (up to 50% to 70%) and erosion of the cut and fill slopes will increase as compared to the existing conditions. In addition, the drainage network installed to control runoff from the "offsite" areas will also likely exacerbate existing erosion problems in down gradient discharge channels. Ultimately, without any Treatment Control BMPs, delivery of fine grained sediments to San Mateo Creek can be expected to increase from the cut and fill slopes proposed for SR-241 and "offsite" runoff discharge.

**Onsite Drainage: Highway Runoff**

The proposed SR-241 RMP identifies runoff generated on the paved surface of the proposed highway as "onsite" runoff. Onsite runoff is collected and routed in a storm drain system to Treatment Control BMPs that primarily include Sand Filter Basins (SFBs) along the lower reaches of San Onofre and San Mateo



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Creeks and Extended Detention Basins (EDBs) along San Mateo Creek and Cristianitos Creek. In favorable locations with relatively flat slopes, Bioswales (Vegetated Swales) and Biostrips (Vegetated Filter Strips) are proposed to provide additional treatment and conveyance.

The SR-241 RMP employs flow splitters to route lower water quality flows associated with small frequent storms to the proposed Treatment Control BMPs. At each location where the proposed highway crosses an existing drainage channel, peak flows that exceed the water quality flow will be split from the storm drain system and discharged to the existing drainage channel. Along San Mateo and Cristianitos Creeks there are about 30 small drainage channels that currently route runoff from the adjacent hills to San Mateo and Cristianitos Creeks. The SR-241 RMP includes about 17 flow splitters and 5 Treatment Control BMPs to treat and route runoff from the highway to the existing drainage channels along San Mateo and Cristianitos Creeks. Lower flows from the highway will be routed past their existing discharge channels, concentrated and treated at the 2 SFBs and 3 EDBs and discharged to 5 existing channels down gradient of the Treatment Control BMPs. It is not clear if the increase in runoff volumes routed to the five Treatment Control BMP discharge channels will result in increased erosion in these discharge channels.

The TCA claims that implementation of the Treatment Control BMPs included in the SR-241 RMP will result in insignificant changes in sediment delivery to San Mateo Creek and will mitigate all water quality impacts associated with the highway. However, in reality, the proposed Treatment Control BMPs have a limited effectiveness in trapping suspended sediment and metals associated with highway runoff. Based on the recent Caltrans BMP Retrofit Pilot Program Final Report (CTSW-RT-01-050, Jan. 2004), the proposed Austin Sand Filters can be expected to trap about 90% of suspended sediment, 87% of the total Lead, but only 50% of the total Copper eroded from the proposed highway. The proposed Extended Detention Basins can only be expected to trap about 72% of the suspended sediment, 72% of the total Lead, and 58% of the total Copper from the proposed highway. Thus, between about 42 and 50% of the Copper washed from the proposed highway will be discharged to the San Mateo Creek. Similarly, 10 to 28% of the suspended sediment and 13 to 28% of the Lead washed from the proposed highway will be discharged to San Mateo Creek.

The end result, contrary to the TCA's claims, is that the proposed highway will result in increased delivery of total suspended sediment, Lead, Copper, and other roadway pollutants to San Mateo and Cristianitos Creeks. This increased delivery of suspended sediment, Lead, and Copper associated with construction of the new highway will more than offset the water quality improvements related to the proposed treatment of runoff from the existing Interstate 5 corridor that is currently discharged to San Onofre and San Mateo Creeks.



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**Hydromodification**

Hydromodification is the effect that the addition of impervious surfaces has on stream channels that may result in the erosion/sedimentation caused by increased runoff. The TCA attempts to address hydromodification concerns in the SR-241 RMP by presenting flow duration plots for two flow splitters and two of the EDBs along San Mateo Creek. The flow duration plots are meant to show that the duration of the range of flows modeled over a 20-year period does not significantly change between the pre-project and post-project with EDB scenarios. However, the flow duration plots are somewhat misleading in that they actually represent the discrete discharge from the flow splitters and EDBs for "onsite" highway runoff. By examining hydrologic modeling results only at the discharge of specific BMPs, the total impacts associated with the entire project including the "offsite" and "onsite" runoff management strategies cannot be determined.

To fully demonstrate that the proposed SR-241 RMP can actually mitigate hydromodification impacts, modeled flow duration curves illustrating the flow durations predicted in each of the existing discharge channels along San Mateo and Cristianitos Creeks should be presented for the pre-project and post-project scenarios. Key concerns include:

1. How well the drainage network for "offsite" runoff performs to maintain existing drainage patterns within each of the existing drainage channels? Are certain existing drainage channels overloaded with increased runoff while other channels handle less runoff?
2. What impact does routing low-flows along long stretches of highway have on the flow duration curves for existing drainage channels downstream of proposed SFBs and EDBs? Will increases in discharge volumes cause destabilization of the five drainage channels downstream of the proposed SFBs and EDBs along San Mateo and Cristianitos Creeks.

**Potential Impacts**

After a detailed review of the TCA's SR-241 RMP, we have identified several potential water quality impacts that have not been fully addressed or evaluated. Among these, the primary concerns are related to:

1. Untreated runoff from about 530 acres of cut and fill slopes that are to be stabilized through revegetation discharged directly to San Mateo and Cristianitos Creeks. Revegetation on these steep slopes will have a limited effectiveness and sediment delivery to San Mateo and Cristianitos Creeks can be expected to increase.
2. Hydromodification impacts for the entire project including runoff from "offsite" areas including cut and fill slopes as well as "onsite" highway runoff have not been fully assessed for each of the small drainage channels that route upland runoff to San Mateo and Cristianitos Creeks.



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3. Increased delivery of suspended sediments and metals to San Mateo and Cristianitos Creeks from the proposed highway as compared to existing conditions.

Based on the SR-241 RMP, we believe that fine sediment delivery to San Mateo Creek can be expected to increase. This increased fine sediment will deposit along San Mateo Creek during small frequent storms. This could potentially result in a layer of fine sediment deposited on the existing cobble bed in San Mateo Creek. When large extreme rainfall-runoff events occur, the increased fine sediment in San Mateo Creek could decrease the delivery cobbles to the mouth of San Mateo Creek and ultimately to the Trestles surf resource resulting in potentially significant impacts to the existing lagoon and Trestles.

If you have any questions, please do not hesitate to contact me at (415) 262-2352.

Sincerely,
PHILIP WILLIAMS & ASSOCIATES, LTD.

Mark Lindley, P.E.

Bob Battalio, P.E.

cc: Dan Silver, Endangered Habitats League
Bill White, Shute, Mihaly & Weinberger



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References:

California Department of Transportation, 2004. BMP Retrofit Pilot Program – Final Report, January 2004, Sacramento, CA (Report ID CTSW-RT-01-050).

California Regional Water Quality Control Board – San Diego Region, 2007. South Orange County Transportation Infrastructure Improvement Project – Summary of Concerns with Supplemental Information, September 24, 2007.

Coastal Commission Staff, 2007. Staff Report and Recommendation on Consistency Certification Foothill/Eastern Transportation Agency (State Route 241), October 2007.

PWA, 2006. Potential Toll Road Impacts on San Mateo Creek Watershed Processes, Mouth Morphology, and Trestles Surfing Area, January 11, 2006.

Saddleback Constructors, 2007. Final Runoff Management Plan – State Route 241, July 26, 2007.

Saddleback Constructors, 2007. Runoff Management Plan Supplemental Documentation – State Route 241, November 6, 2007.

TCA, 2007. Response to (Coastal Commission) Staff Report and Recommendation on Consistency Certification, January 9, 2008.



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January 17, 2008

Chairman Patrick Kruer
ATTN: Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94108

Subject: Refined I-5 Widening (AIP-R) Runoff Management Plan: Response to TCA's comments on Coastal Commission Staff Report, Foothill Transportation Corridor-South

Dear Chairman Kruer and Commission Members:

PWA has been asked to review the Transportation Corridor Agencies' (TCA) comments on the Coastal Commission Staff Report, released September 2007. Specific TCA comments related to the conceptual Runoff Management Plan for the AIP-R alternative for widening the existing Interstate Highway 5 (I-5) are summarized and PWA's responses are given below.

**TCA Response to Staff Report and Recommendation on Consistency Certification.**

Page 118 – second paragraph

Comment**:** General comments on topographical constraints between El Toro Road and San Diego County Line.

*Response**:** The placement of extended detention basins (EDBs) did account for the constrained topography in this area. EDBs were located in low spots along the highway. In addition to the maximum area required for EDBs, a 10-meter buffer was included to account for grading in areas of steep terrain (similar to the initial alternatives analysis developed by SOC-TIIP). A 10-meter buffer allows for a 16-foot elevation difference between the basin and the surrounding land assuming a 2:1 slope. If the elevation difference is greater than this, some combination of retaining walls and grading are possible. Retaining walls are common in urbanized areas, and there is no evidence at this point that they would be cost prohibitive.*

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**Response to Smart Mobility Report the Refined AIP Alternative**

**Page 4 – first paragraph**

Comment: General comments on topographical constraints.

*Response: The placement of BMPs did take topographical constraints into account. Specific EDBs are addressed is subsequent comments.*

**Page 4 – second paragraph**

Comment: AIP-R revised plan has two areas where no basins are shown: (1) North of SR-1 to Vista Hermosa and (2) south of Avenida Presidio to Cristianitos Road.

*Response: The area mentioned in (1) is served by six extended detention basins (EDBs 4, 5A, 5B, 6, 7A, and 7B).*

*The area mention in (2) is served entirely by EDB 1B. The SOCTIIP Runoff Management Plan (RMP) identified two EBDs (1A and 1B) for this stretch of I-5. The AIP-R RMP combined these basins after we found that the footprint for EDB 1B was oversized in SOCTIIP's RMP. This stretch does have two drainage points, but water quality flows can be diverted from one point to the next downstream point via a flow-splitter.*

**Pages 26 – 29**

Comment: EDB 3-F is located on a steep slope that is thought to be geotechnically unstable.

*Response: Basin 3-F has been relocated to four smaller basins, (3-F, 1-4) located between Avenida Pico and the proposed on/off ramps. Retaining walls may be required to stabilize the adjacent roads while providing sufficient depths within the basins.*

Comment: EDB 3-E would require a full take of the adjacent hotel and convention area.

*Response: The footprint of EDB 3-E and the 10-meter buffer are located between the parking area and the highway. Based on this proposed layout, property taking would not be required.*



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Comment: EDB 7-B is located on a hillside on the far side of a drainage way, and over 20 feet above the highway.

*Response: EDB 7-B is a detention basin originally included in SOCTIIP's RMP for their original AIP Alternative. The revised AIP-R RMP was based on the assumption that basins included in the original RMP were hydrologically feasible. However, this basin has been replaced by a vegetated swale adjacent to the highway in a revised AIP-R RMP to address this comment.*

Comment: EDB 13-A and EDB 11 are located in commercial parking areas requiring property taking.

*Response: EDB 11 is a detention basin that was included in SOCTIIP's RMP for the original AIP Alternative and was not revised in the AIP-R Alternative. EDB 13-A is a new detention basin in the revised AIP-R RMP. These detention basins are located in existing parking lots. If a traditional detention basin is impractical for these existing parking lots, other options include sub-surface detention, low-impact development best management practices, or a combination of stormwater and water quality treatment facilities. The detailed selection and design of these facilities is beyond the scope of a conceptual level RMP.*

Comment: AIP-R plan has two areas where no EDBs are shown.

*Response: See response to comments for Page 4, second paragraph above.*

**Conclusion**

The conceptual AIP-R Alternative developed by Smart Mobility and PWA was intended to demonstrate that widening the existing I-5 is feasible without massive impacts to existing properties identified by SOCTIIP in their EIR Alternatives analysis. The Runoff Management Plan developed by PWA for the AIP-R Alternative utilized the same sizing and analysis procedures for runoff treatment best management practices employed by SOCTIIP, but made an effort to locate and size proposed detention basins and vegetated swales in open space areas along the highway to minimize impacts to existing properties. Smart Mobility and PWA developed a revised alternative that would provide similar traffic benefits and storm water runoff treatment with fewer property displacements.

There are certainly considerable engineering design efforts required to take an alternative from the conceptual level through design and construction. While we anticipate that some locations identified in the AIP-R Alternative may present engineering challenges, we do not think that there are any challenges that cannot be overcome. Ultimately detention storage can be provided subsurface within the highway right-of-way in conjunction with the storm drain system. Also, many of the areas along I-5 drain to



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existing concrete drainage channels, and the RWQCB and other local agencies may not require construction of best management practices that require taking of existing structures in areas that discharge to concrete channels.

The end result is that the AIP-R alternative demonstrates that widening the existing I-5 is a feasible alternative to SR 241 that requires further study. Rather than dismiss widening I-5 prematurely in the EIR, SOTIIP should have further developed the I-5 widening alternative for a fair analysis against their preferred State Route 241.

If you have any questions, please do not hesitate to contact me at (415) 262-2352.

Sincerely,
PHILIP WILLIAMS & ASSOCIATES, LTD.

Mark Lindley, P.E.

Enclosure Excerpts from TCA Comment Letter

cc: Dan Silver, Endangered Habitats League
Bill White, Shute, Mihaly & Weinberger



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would be substantially higher than those stated by SMI. Therefore, the SMI statement is incorrect.

*Flaws in Overall Design*

The SMI report generally assumes that the area in which the widening is to occur is flat and, therefore, does not take into account topography. **The cross sections that are included in the report are very deceiving – they imply the corridor is flat.**

INFACT: There is a significant elevation difference between I-5 and the surrounding ground at almost all locations between El Toro Road and the San Diego County line (see Exhibits B, C and D of Attachment 23 for examples) as well as along the arterial widenings. The reason this is significant is that the cross sections make it appear that there is no need to take adjacent private land and buildings to accommodate the required slopes (See Exhibit A and Cross Section P Existing and Proposed of Attachment 23). To accomplish freeway and arterial widening and stay within the existing roadway right-of-way, retaining walls would be needed along almost the entire corridor (in many areas retaining walls already exist). Retaining walls carry a very significant capital construction cost, and they also have significant on-going maintenance cost (graffiti removal, structural inspection).

The SMI report states that the conceptual design plans are consistent with all applicable Caltrans guidelines. We cannot verify this statement because horizontal and vertical sight distance standards would need to be verified and without vertical profiles this cannot be determined. Although we do not have the information to either verify or determine this is an inaccurate statement, our engineering review of the AIP-R concludes that it is highly unlikely that the AIP-R is consistent with all applicable Caltrans guidelines.

*Additional Comments*

Traffic Analysis/Lane Configuration: The design of the Arterial Improvements Plus HOV and Spot Mixed-Flow Lanes on I-5 (SOCTIIP AIP) was based on Caltrans standard preliminary design procedures to establish the roadway widening improvements necessary to meet the lane criteria established/confirmed by the Collaborative traffic consultant's analysis.

The AIP-R siting of many EDBs would not only be exceedingly costly but several would require exceptional engineering/construction solutions and some are just not practical nor do they conform to accepted engineering practice. See Page 26 for specific examples.

The existing I-5 is located in an area of significantly variable topography. There are many areas where the land next to I-5 differs in elevation by over 50 feet. Because of the variable topography, there are substantial areas of open space directly adjacent to the I-5 roadway both within the right-of-way and outside the right-of-way which are sloped due to hills and canyons. The location of EDBs cannot be based solely on the availability of "open space" as seen from an aerial photograph because the location of the EDBs must account for topography and related constraints such as hydrology.

The AIP-R plan has two areas where no EDBs are shown – from north of SR-1 (EDB 7B) to Vista Hermosa, a distance of over 3 miles which has several drainage points which require some type of stormwater runoff treatment. Also, from south of Avenida Presidio to Cristianitos Road, a distance of almost 2 miles with 2 distinct drainage points would require stormwater runoff treatment. The conceptual runoff management plan has no proposed water treatment facilities within these two reaches of the proposed AIP-R I-5 widening. It is unclear whether this is simply an oversight by the "nationally recognized experts in….hydrological engineering" or rather a planned avoidance of the issue designed to avoid necessary property takes related to these important water quality protection facilities.

5. Context Sensitive Interchange Design

AIP-R[5] text states:

> *"As demonstrated in this report, even minor refinements to the design of the (SOCTIIP) AIP can greatly reduce or even eliminate displacement, such as …context-sensitive interchange design."*

In Fact:

> Context Sensitive Design is not a process in which a single entity advances their design ideas without consideration from other parties, as SMI has done in their report. Rather, Context Sensitive Design "is a collaborative approach to developing and redesigning transportation facilities that fit into their physical and human environment while preserving the aesthetic, historic, community, and natural environmental values. CSD contributes to community, safety, and mobility." (Context Sensitive Design, FHWA http://www.fhwa.dot.gov/environment/csd.htm). FHWA also notes that the "ultimate decision on the use of existing flexibility

[5] (2nd paragraph, page 4), AIP-R, SMI



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with multiple commercial entrances, requiring right and left turns as well as street parking. Camino Capistrano is designated a Primary Arterial and generally consists of 4 lanes with a median with a shoulder (for parking) and a sidewalk on the west side only. The existing/forecast traffic in this segment is 24,000 (2003) / 30,000 (2025) ADT. The Primary Arterial designation requires four lanes (with median) with 8' shoulders for an 80' pavement width plus sidewalks in a 100' right of way. The SMI Report reduces this Primary Arterial to two lanes with a median for left turn movements and reduces the right-of-way width by 28' which does not conform to County standards. In addition the 2025 traffic volumes indicate the need for a six lane divided roadway.

- **El Camino Real** south of the I-5 exit (See Cross Section S Existing and Proposed attached) is the ONLY continuous alternative route to I-5 and the only emergency access from the county line through San Clemente to Pacific Coast Highway (SR-1). El Camino Real is designated a Secondary Arterial and generally consists of four lanes with no median, 6' shoulders and a sidewalk on the northeast side only. The existing/forecast traffic in this segment is 17,000 (2004) / 17,000 (2030) (ADT). The existing roadway does not meet the Secondary Arterial designation requirements of four lanes (without median) with 8' shoulders for a 64' pavement width plus sidewalks in an 80' right of way. The SMI Report reduces this Secondary Arterial to two lanes with no median and 4' shoulders and reduces the right-of-way by 23' which does not conform to County standards.

C. Stormwater Facilities

In Fact: The AIP-R siting of many EDBs would not only be exceedingly costly but several would require exceptional engineering/construction solutions and some are just not practical.

- EDB 3F is located on a steep slope above the existing ramp and arterial which border the site. See Exhibit D (attached) which is a photo of the site showing the existing church located immediately at the top of the slope which exceeds 140 feet high and is underlain by the Capistrano formation which is known locally to be geotechnically unstable. This location is not practical.
- EDB 3E is located below I-5 on a steep slope at the bottom of which is the primary access road to a hotel/convention facility and a commercial parking area. This EDB would require a full take of the hotel/convention facility. It would therefore not be feasible.
- EDB 7B is proposed on a hillside which is on the far side of a drainageway and over 20 feet above the roadway. See Exhibit C (attached) which is a photo of the actual hillside location of EDB 7B. This site has recently been filled to build the office buildings shown in the photo. Not only is location not practical, it would require at least a partial take of the new office building.



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- EDBs 13A and 11 are sited in commercial mall/shopping area parking lots which have no adjacent land available for replacement parking. Provision for Caltrans to have title and access to maintain the EDBs would require construction of multi-level replacement parking structures for private entities.
- The AIP-R plan has two areas where no EDBs are shown – from north of SR-1 (EDB 7B) to Vista Hermosa, a distance of over 3 miles which has several drainage points which require some type of stormwater runoff treatment. Also from south of Presidio to Cristianitos Road, a distance of almost 2 miles with 2 distinct drainage points requiring stormwater runoff treatment.

IV ADDITIONAL COMMENTS:

A. Traffic Analysis/Lane Configuration

The design of the Arterial Improvements Plus HOV and Spot Mixed-Flow Lanes on I-5 (SOCTIIP AIP) was based on Caltrans standard preliminary design procedures to establish the roadway widening improvements necessary to meet the lane criteria established/confirmed by the collaborative traffic consultant's analysis.

The AIP was predicated on the Purpose and Need of the SOCTIIP to meet minimum capacity requirements. The **Caltrans Highway Design Manual (HDM) Topic 102** states "freeways should be designed to accommodate design year peak hour (PH) traffic volumes". The number of lanes required on a multi-lane urban freeway is based on PH volume per lane at level of service between C and E. In other words, the Caltrans "metric" or standard for "minimum capacity requirement" is Level of Service E for project/expenditure planning of widening projects. The addition of one HOV lane (required by AQMD) for the AIP, plus the addition of auxiliary lanes where possible, **still did not bring the capacity up to LOS E in all areas**. Therefore, the Caltrans "metric" for further study of the AIP was not met.

Consequently, the SMI claim that the AIP-R provides "the same superior traffic benefits associated with the (SOCTIIP) alternative"[8] is inappropriate.

B. Roadway Design

**Topic 82.1.2 Application of Standards of the HDM** states Mandatory Design Standards are those considered most essential to achievement of overall design objectives. Many pertain to requirements of law or regulations such as those embodied in the FHWA's 13 controlling criteria.

[8] (3rd paragraph, page 1), AIP-R, SMI



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January 22, 2008

Chairman Patrick Kruer
ATTN: Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: Response to "Response to Coastal Commission Staff Report Released September 2007, Foothill South Transportation Corridor South" regarding impacts to the endangered arroyo toad (*Anaxyrus* [*Bufo*] *californicus*)

Dear Chairman Kruer and Members of the Commission:

I was recently made aware of and have reviewed the TCA response to the Coastal Commission Staff Report for the above-referenced project proposal. This letter responds to that document's discussion of the project's impacts to the endangered arroyo toad and misinformation contained therein.

My credentials as an expert on the arroyo toad are set forth in my letter to the Commission dated **August 16, 2007.** In my original letter, I detailed the best scientific information available on the arroyo toad in the lower San Mateo and San Onofre Creek watersheds. All information provided in that letter was and is sound, repeatable, and observable.

Page 8 of the executive summary of TCA's response states that the arroyo toad was not identified by surveys "within the coastal zone portion of the project." However, even if these particular surveys did not find the arroyo toad, the fact remains that they do occur within the footprint of the project within the coastal zone. Overwhelming evidence for this exists in the collections, peer-reviewed literature, contract reports, and my own personal observations (Holland and Goodman 1998, Shanahan 1998, Atkinson et al. 2003, Brehme et al. 2006, pers. Obs.). Precise locations in reports plus the mobile nature of this species guarantees occupation and utilization of the project footprint by arroyo toads. TCA thus ignores the best available scientific information amassed over decades of work on the arroyo toad in San Mateo Creek.

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Page 8 of the executive summary of TCA's response also references a statement by a TCA consultant asserting that the bridge spans for the toll road would be above the river and that therefore impacts to arroyo toad are limited to the footprint of the supporting bridge columns. This statement is flawed. Impacts to the toads will occur simply by spanning the bridge over its habitat. Arroyo toads are not known to breed beneath bridges because shading reduces the capacity for thermoregulation of these ectothermic organisms. Even a permanent shadow cast across the creek from 50 feet above will cause a reduction of habitat and impacts to existing and occupied arroyo toad habitat.

The letter of Dr. Dennis Murphy, attached to and referenced in the TCA Response document, ignores the science available on arroyo toads in the San Mateo Creek. He points to the Monitoring Protocol developed by Camp Pendleton for the species. I am very familiar with that protocol: I conceived of the project, funded it, developed it by contracting my colleagues from the USGS, and contracted the implementation thereof. The protocol has no relevance to the Toll Road project. Dr. Murphy also questions the occurrence of arroyo toads in the coastal zone, despite all of the scientific work cited above that proves their occurrence.

In the letter from Dr. Murphy (page 4 of 6, 1st paragraph), he erroneously states that "the fate of the arroyo toad in the overall project area is very much a matter of its survival in areas inland." This is a completely unsubstantiated claim that distracts from the obvious impacts to arroyo toad habitat in the project footprint. As noted above, the peer-reviewed and other information clearly demonstrates the occurrence of the arroyo toad in the coastal zone of Lower San Mateo Creek.

Page 4 of 6, paragraphs 2 and 3 of Dr. Murphy's letter criticizes the Commission for ignoring conservation efforts on Camp Pendleton and in the Southern Subregion HCP. These are stand-alone efforts that have nothing to do with the Toll Road project and do not address its impacts nor mitigate for them in any fashion.

Moreover, Murphy's claim that the proposed project does not affect an important portion of the species range is wrong. Rather, it would impact one of only three coastal populations extant in the United States. The arroyo toad historically occurred in all rivers of southern California terminating only where the saltwater influence begins. The Toll

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Road as proposed would further reduce the potential for one of the last three populations to survive in perpetuity.

Section iv. of TCA's response claims that "There is absolutely no scientific evidence that arroyo toads closer to the coast are any different from those inland." This is a false statement. The M.S. Thesis by Shanahan (1998) that I cited in my letter, conclusively proves otherwise. Arroyo toads are significantly different genetically in coastal portions of San Mateo and San Onofre Creek than populations farther inland or in other watersheds. The Toll Road would reduce the gene flow between populations necessary to avert deleterious inbreeding by cutting off connectivity.

In my previous letter, I addressed the proposed mitigation measures, which are primarily construction-related. These in no way compensate for the loss of habitat and connectivity.

In conclusion, the TCA's response disregards the available scientific literature that documents arroyo toad occupancy in the coastal zone and fails to account for the project's adverse and unmitigable effects.

Please feel free to contact me if you have further questions.

Sincerely,

Robert Lovich

Robert Lovich, M.S.
4886 Mount Armour Drive
San Diego, CA 92111
rlovich@gmail.com

Atkinson, A. J., B. S. Yang, R. N. Fisher, E. Ervin, T. J. Case, N. Scott, H. B. Shaffer. 2003. MCB Camp Pendleton Arroyo Toad Monitoring Protocol.

Brehme, C.S., S.L. Schuster, C.J. Rochester, S.A. Hathaway and R.N. Fisher, 2006. MCBCP Arroyo Toad Monitoring Program: 3-Year Trend Analyses for 2003-2005. U.S. Geological Survey Data Summary prepared for Marine Corps Base Camp Pendleton. 102pp.

Griffin, P.C. and T.J. Case. 2001. Terrestrial habitat preferences of adult arroyo southwestern toads. Journal of Wildlife Management. 65(4):633-644.

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Holland, D.C. and R.H. Goodman, Jr. 1998. A Guide to the Amphibians and Reptiles of MCB Camp Pendleton, San Diego County, California.

Shanahan, J.A. 1998. Characterization of nine highly polymorphic microsatellite loci for use in examination of population subdivision and genetic diversity in the endangered arroyo toad (Bufo microscaphus californicus). Thesis (M.S.). University of California, San Diego.

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August 16, 2007

RECEIVED
AUG 2 0 2007
CALIFORNIA
COASTAL COMMISSION

Mr. Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Foothill South Transportation Corridor (San Diego and Orange Counties), and Potential Impacts to Endangered Arroyo Toads (*Anaxyrus* [*Bufo*] *californicus*)

Dear Mr. Delaplaine:

I recently received your letter requesting my expert opinion on potential impacts to San Mateo Creek populations on the federally endangered arroyo toad (*Bufo californicus*) as a result of the proposed Foothill South Transportation Corridor (San Diego and Orange Counties), as assessed in the Coastal Zone Management Act Consistency Application for the project.

As a PhD. candidate, and having earned an M.S. in Biology, I have more than a working understanding of this species. My dissertation research is related to the conservation genetics of the arroyo toad, and I also have nearly a decade of direct experience with the management, research, and conservation of this species. I have conducted field studies of arroyo toads in every river system that they occur in both in California, and in Baja California, México. I have documented new populations, and even rivers for the species (Mahrdt et al. 2003). I have spent thousands of hours studying the arroyo toad in the wild throughout its range. I have also reviewed and/or drafted dozens of environmental documents related to arroyo toad impacts in my professional career.

I have reviewed the CZMA Consistency Application submitted to the Commission by TCA, as well the SEIR for the project. Contrary to the findings in the application, this project would significantly disrupt arroyo toad populations in the coastal zone of San Mateo Creek watershed, and over the long term would impact populations in neighboring watersheds and tributaries as well, including those in San Juan Creek, and

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likely San Onofre Creek. Current scientific evidence of the known distribution, habitat use, and overall biology of the arroyo toad indicate several factors:

1. Occupied and known arroyo toad habitat would be directly and significantly disrupted within the coastal zone of lower San Mateo Creek. Arroyo toads are well known as inhabiting the lower portions of San Mateo Creek, even west of I-5 (Griffin and Case 2001, Holland and Goodman 1998). Besides inhabiting suitable riparian habitat in the main branch of San Mateo Creek, they also occupy riparian habitats immediately adjacent to the San Mateo Creek estuary, the lower end of the agricultural fields in San Mateo Creek, and upland habitats adjacent to the San Mateo Campground. These areas are within the proposed Tollroad footprint. Any construction or disturbance activities in lower San Mateo Creek within or adjacent to the coastal zone will directly result in impacts to occupied arroyo toad habitat.
2. Outside of coastal zone impacts, arroyo toad occupied habitat would be disrupted along the length of upland habitats on the north side of San Mateo Creek, Cristianitos Creek, Lower Gabino Creek, and San Juan Creek. Arroyo toads are known to occupy upland habitats in Cristinatios Creek as far as 1175 meters from the edge of Riparian habitat (Holland and Sisk 2000). Not only were they documented at nearly 1.2 km from the edge of riparian habitat, but these were the farthest that arrays were placed for the study. Findings of Holland Sisk (2000) determined that there is no natural limiting factor to preclude them from moving even greater distances than 1.2 km from the riparian edge. Griffin and Case (2001) also documented telemetered toads ranging widely along the lower San Mateo Creek habitats. Arroyo toads are also known to occupy San Juan Creek, and Gabino Canyon. Any disturbance or construction in riparian or adjacent upland habitats along these drainages will result in impacts to occupied arroyo toad habitat as well. Supporting evidence for upland habitat use shows that arroyo toads have moved similar horizontal and vertical distances from riparian habitats respectively in Boden Canyon and De Luz Creek, San Diego County (Pers. Obs.), and at San Faustino and in the Rio San Rafael, Baja California, México (Lovich et al. In Press).

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3. An important biological consideration is that arroyo toads overland movements and upland habitat use is correlated with rainfall. When conditions are wetter, arroyo toads can range farther from water sources without desiccating, and they are capable of moving larger distances overland. Thus any surveys conducted in dry, or below-average rainfall years should be considered suspect, and not representing the total available habitat for the species.
4. Preliminary results of my dissertation indicate that very low mitochondrial DNA sequence variation exists in the arroyo toad, supporting the importance of gene flow between watersheds and the hypothesis that arroyo toads move between watersheds and utilize upland habitats far more frequently than existing data indicates. Movements and gene flow between watersheds contributes to increasing gene flow and maintaining similar ancestral DNA sequences as a result.
5. Shanahan (1998) studied the population genetics of the arroyo toad using microsattellites and found evidence of recent gene flow between populations in San Onofre and San Mateo Creek watersheds. Variation was found among populations within San Mateo Creek tributaries as well. This data, and that form my PhD. Dissertation support the model that gene flow is occurring in geographically proximal streams such as San Mateo River and San Juan Creek. Such gene flow is well known to maintain genetic diversity and avoid deleterious effects from inbreeding. Impacts on known arroyo toad populations in lower San Mateo Creek could result in a lowered potential for gene flow between San Mateo Creek and San Onofre, because populations will be reduced and fragmented by habitat impacts.
6. Mitigation measures in the CZMA application are insufficient. Most of the measures are related to pre-construction and construction related impacts, and the duration of funding for surveys of long-term impacts, exotic species control, and landscaping and restoration activities is nebulous at best. Given the above information, it is well-known that occupied arroyo toad habitat will be significantly and permanently disrupted as a result of construction of the tollroad.

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The above scientific evidence clearly shows that occupied arroyo toad habitat in coastal zone and elsewhere will be destroyed if the tollroad is constructed as proposed. Available habitat will be reduced, in turn reducing genetic variation and limiting natural movements of the arroyo toad. However, immediate loss of habitat will also result as the tollroad would remove many acres of suitable upland habitat utilized by the arroyo toad for foraging and also for burrowing retreats between periods of activity.

In my professional opinion, potentially irreversible fragmentation of arroyo toad populations within and without the coastal zone would result from the construction of the proposed tollroad. The Tollroad footprint represents the last wildlife corridor that extends from the Pacific Ocean inland to the Santa Ana Mountains. Areas to the north and south have already been compromised by development, and arroyo toads vanished from these areas long ago. The tollroad in this location would degrade and fragment this extraordinary relict of a once-larger functional ecosystem in Southern California.

I also know from direct study that the herpetofauna along the southern end of the tollroad represent an intact species assemblage. That is, all of the reptile and amphibian species that were there historically are currently extant except for the red-legged frog (*Rana draytonii*). The cost of developing these lands could be very high to some of the approximately 40 species of native reptiles and amphibians likely to occur there. Some of these roughly 40 species are highly endangered as well, such as the Southwestern Pond Turtle (*Emys marmorata*), coastal banded gecko (*Coleonyx variegatus abbotti*), and coastal glossy snake (*Arizona elegans occidentalis*), although these species currently lack federal protection warranted to the arroyo toad under the Endangered Species Act.

Arroyo toads studied in the vicinity of the project area represent the first documented movements by the species of well over a kilometer from riparian habitats into adjacent upland habitats (Holland and Sisk 2000). To claim in the application that no impacts will occur to occupied arroyo toad habitat flies in the face of the good science that broadened our understanding of upland habitat use in this very location.

This project is surrounded by textbook examples of arroyo toad management, both good and bad. The San Luis Rey River to the south lacks arroyo toads from Bonsall downstream because of dense urban development, abundant exotic species, altered hydrology, and other factors. Just to the north is the Santa Margarita River, which has

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continuous populations of arroyo toads along its last ten miles, and also has very little development infringing upon it along that course.

The San Onofre, San Mateo and Santa Margarita Rivers have the only extant continuous populations of arroyo toads that occur from the coast to inland areas throughout their entire range in California. They have been completely fragmented in every other river system, and are no longer found in coastal areas elsewhere in California. In general, development adjacent to arroyo toad occupied river systems has resulted in the loss of this species, and it is highly likely that similar fragmentation would occur if the proposed project is developed.

The CZMA application is false in claiming no impacts will result and does not adequately analyze how arroyo toads will be affected by the project, and successfully protected and managed in perpetuity. My personal challenge as a professional biologist working in this region has always been to find a balance between effective conservation of threatened species, and sustainable use of the landscape. However, as it stands, this project is inconsitent with that balance by significantly reducing the viability of arroyo toads in and adjacent to the proposed project. A far more thorough and forthright analysis of impacts and mitigation needs is required.

Please feel free to contact me if you have further questions.

Sincerely,

Robert Lovich

Robert Lovich
4886 Mount Armour Drive
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rlovich@gmail.com

Griffin, P.C. and T.J. Case. 2001. Terrestrial habitat preferences of adult arroyo southwestern toads. Journal of Wildlife Management. 65(4):633-644.

Holland, D.C. and R.H. Goodman, Jr. 1998. A Guide to the Amphibians and Reptiles of MCB Camp Pendleton, San Diego County, California.

Holland, D.C. and N.R. Sisk. 2000. Habitat Use and Population Demographics of the Arroyo Toad (*Bu californicus*) on MCB Camp Pendleton, San Diego County, California:

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Final Report for 1998-1999.

Lovich, R.E., C.R. Mahrdt, S.J. Zimmitti, and G. D. Danemann. In Press. The Distribution and Conservation Status of the Arroyo Toad (*Bufo californicus* Camp) in Baja California, México

Mahrdt, C.R., R.E. Lovich, S.J. Zimmitti, and G. D. Danemann. 2003. Geographic Distribution. *Bufo californicus*. Herpetological Review. 34(3):256-257.

Shanahan, J.A. 1998. Characterization of nine highly polymorphic microsatellite loci for use in examination of population subdivision and genetic diversity in the endangered arroyo toad (Bufo microscaphus californicus). Thesis (M.S.). University of California, San Diego.

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# *Robert E. Lovich, M.S.*

**(619) 889-7587**

**rlovich@gmail.com**


**Education -** B.S. in Zoology, University of Hawaii 1996
M.S. in Biology, Loma Linda University 2000
*PhD. student, Loma Linda University, 2002-present*

## PROFESSIONAL EXPERIENCE

**Natural Resources Specialist, U.S. Navy, 2006-present**
Duties include management of natural resources on military lands in the southwestern United States, with an emphasis on federally listed threatened and endangered species, compliance with environmental regulations, and formulating, contracting, and conducting research relevant to wildlife resources. I focus primarily on natural resources of Marine Corps installations in the California, Nevada, and Arizona region.

**Senior Biologist, AMEC Earth and Environmental, 2005-2006**
Providing support of natural resource and other contracts, including exotic species mitigation for Kinder Morgan Pipeline Project at MCBCP, MCBCP Artillery Firing Area Surveys for the Endangered Stephens' Kangaroo Rat, as well as the Santa Clara River Arundo Removal Program, and Desert Tortoise Surveys.

**Senior Biologist, Anteon Corporation, 2004-2005**
Provided biological oversight for natural resource contracts, environmental document editing and preparation. Assisted in developing the following specific projects and/or contracts: Development of the Final Environmental Assessment for Range Modernization at the Pohakuloa Training Area, Island of Hawaii for the Department of the Army, Schofield Barracks (2004); Draft Biological Assessment for Training at Red Beach, United States Marine Corps, Camp Pendleton, California (2004); Draft Biological Assessment for Steelhead Salmon (*Oncorhynchus mykiss*), United States Marine Corps, Camp Pendleton, California (2004).

**Wildlife Biologist, Marine Corps Base Camp Pendleton, 2001-2004**
Duties included array of responsibilities pursuant to wildlife management on the base, with special emphasis on federally listed threatened and endangered species, compliance with environmental regulations, and formulating, contracting, and conducting research relevant to wildlife resources. MCBCP is home to more endangered species than any other military base, and the workload demands and experience reflects this.

Exemplar projects and/or contracts managed: Development and Implementation of a Basewide Monitoring Protocol for the Arroyo Toad (2003); Development and Implementation of a Basewide Monitoring Protocol for the Tidewater Goby (2003); Creation of a 20-acre Coastal Sage Scrub Mitigation Bank (2001-ongoing); Juliett Area Stephens' Kangaroo Rat Habitat Enhancement;

Section 7 ESA Consultations Conducted: Range 314 Access Road (2003); Expan

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parking areas associated with P-017/098 BEQ at Camp San Mateo (2002); P-633 Infantry squad battle course (26 Jul 2001); SDG&E access road near San Onofre housing (2002); Sempra Energy Talega Substation (2001); P-634 Armor/Anti-armor tracking range (2001); Juliett perimeter firebreak road and erosion control project (2001).

**Research Technician, San Diego State University, 1999-2001**
Contract Employee of the United States Geological Survey, Western Ecological Research Center. Duties included but not limited to: surveying and monitoring terrestrial vertebrates and invertebrates throughout southern California, report preparation and publication, data entry and payroll. Conceived, conducted, and published and/or presented several original research projects as part of the responsibilities of this position.

**Dynamic World Biological Services, 1997-2000**
Performed General Biological and Habitat Assessments throughout the Coachella and Imperial Valleys, including focused desert tortoise surveys. Consulting biologist for 'The Canyons at Bighorn' in Palm Desert, CA. Biological subcontractor for 'Varanus Biological Consulting.' Collaborated in development of Biological Assessment Reports for both the San Pasqual and San Luis Rey River corridors. Biological subcontractor for 'Tierra Madre Consulting,' Inc. Performed desert tortoise (*Gopherus agassizii*) and arroyo toad (*Bufo californicus*) surveys throughout southern California.

**Loma Linda University, 1996-1999**
Extensive laboratory experience in conducting genetic research. Proficient with DNA extraction, amplification, visualization by gel electrophoresis, sequencing and data analysis.

**University of Hawaii at Manoa, 1993-1994**
Field and lab assistant for native Hawaiian forest bird study at Harold Lyon Arboretum. Extensive experience in mist netting of native passerines, and in field observations of many species of native Hawaiian forest birds.

## PUBLICATIONS

Lovich, R.E., T.S. Akre, M. J. Ryan, N.J. Scott, and R.E. Ford. 2006. Herpetofaunal survey of Cerro Guanacaure, Montaña La Botija and Isla Del Tigre protected areas in southern Honduras. Report prepared for the United States Agency for International Development. 33pp.

Lovich, R.E., T. Akre, J. Blackburn, T. Robison, and C. Mahrdt. 2007. Geographic Distribution. *Actinemys marmorata.* Herpetological Review. 38(2): 216-217.

Ervin, E., R. Lovich, K. Gray Lovich, N. Scott, and J. Lopez. 2007. *Eleutherodactylus stejnegerianus* (Stejneger's Robber Frog): Predation. Herpetological Review. 38(2): 185.

Lovich, R.E., E. Dugan, and C.R. Mahrdt. In prep. Terrestrial Herpetofauna of the Bahía de Los Angeles. *In*, Danemann, G., and E. Ezcurra (Eds.), "Natural History of the Bahía de Los Angeles."

Lovich, R.E. W. Hayes, H. Mushinsky, and G. Rodda. In Press. Transect Sampling. *In*, Foster, M. et al. (Eds.) "Measuring and Monitoring Biodiversity: Standard Methods for

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Reptiles." Smithsonian Press. Washington D.C., USA.

Lovich, R.E. and A.M. Bauer. In Press. Saxicolous Reptiles. *In*, Foster, M. et al. (Eds.) "Measuring and Monitoring Biodiversity: Standard Methods for Reptiles." Smithsonian Press. Washington D.C., USA.

Lovich, R.E. and C.K. Lovich. In Press. Microhabitat description. *In*, Foster, M. et al. (Eds.) "Measuring and Monitoring Biodiversity: Standard Methods for Reptiles." Smithsonian Press. Washington D.C., USA.

Lovich, R. E., E. E. Ervin, and R. N Fisher. In Prep. Terrestrial fauna community composition of *Arundo donax* (Poaceae) root masses.

R.E. Lovich, Mahrdt, C.R., and Downer, B. 2005. Geographic Distribution. *Actinemys marmorata*. Herpetological Review 36(2):200-201.

Mahrdt, C.R., and R.E. Lovich. 2004. Geographic Distribution. *Bufo californicus*. Herpetological Review. 35(3):280

Lovich, R.E. 2004. Book review: *Introduction to Horned Lizards of North America* by Wade C. Sherbrooke 2003. Bulletin of the Chicago Herpetological Society. 39(8):151-152.

Lovich, R.E. 2003. Habitat Use by the Amakihi, *Hemignathus chloris* (Aves: Drepanidinae) in an Urban Setting: Indications of ecological plasticity. Elepaio 63(7):51, 54-55.

Mahrdt, C.R., R.E. Lovich, S.J. Zimmitti, and G. D. Danemann. 2003. Geographic Distribution. *Bufo californicus*. Herpetological Review. 34(3):256-257.

Lovich, R.E. 2003. Book review: *Amphibians and Reptiles of Baja California: Including its Pacific Islands and the Islands in the Sea of Cortés* by L. Lee Grismer 2002. Bulletin of the Chicago Herpetological Society. 38(3):153-154.

Lovich, R. E., and L. L. Grismer. 2003. *Xantusia gracilis*. Catalogue of American Amphibians and Reptiles. 772.1-772.2.

Mittermeier, C. G., W. R. Konstant, R. E. Lovich, and J. E. Lovich. 2002. The Mojave Desert. Pp.351-356. *In*, Wilderness: Earth's Last Wild Places. Mittermeier, R, C. G. Mittermeier, P. Robles Gil, G. Fonseca, T. Brooks, J. Pilgrim, and W. R. Konstant (eds.). CEMEX, México.

Mahrdt, C.R., R.E. Lovich, and S.J. Zimmitti. 2002. Habitat and population status of the arroyo toad (*Bufo californicus*) in the Rio Guadalupe, Baja California, Mexico. Herpetological Review 33(2):123-125.

Lovich, R.E. 2001. Phylogeography of the night Lizard, *Xantusia henshawi*, in southern California: Evolution across fault zones. Herpetologica 57(4):469-486.

Lovich, R.E. 1997. Recent fisher (*Martes pennanti*) sightings in Indiana County, Pennsylvania: Return of a native? The Maryland Naturalist. 41(1-2):45-48.

Lovich, J. E., and R. E. Lovich. 1996. The decline of native brook trout (*Salvelinus fontinalis*) populations along the Upper West Branch of the Susquehanna River: canaries outside the coal mine. Journal of the Pennsylvania Academy of Science. 70(2):55-60.

## ONGOING RESEARCH

**PhD. Dissertation 2002-present** - Phylogeography and conservation genetics of the federally endangered arroyo toad (*Bufo californicus*).

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**2006** – Led a herpetofauna investigation of three protected areas in southern Honduras, involving Loma Linda University, USAID, and numerous additional supporting institutions.
**2004** – Led a herpetofauna investigation in the southern Pacific coast of Costa Rica, involving Loma Linda University, San Diego Zoological Society, ASANA, and several other institutions.
**2001-present** – Conducting rangewide surveys of the status and distribution of the arroyo toad (*Bufo californicus*), and other aquatic herpetofauna in northern Baja California. Manuscript in preparation.

## PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

Assistant Editor, *Herpetological Conservation and Biology*, 2006-present
Partners in Amphibian and Reptile Conservation (PARC), CA State Coordinator, 2003-present
Research Associate, Pronatura
American Society of Icthyologists and Herpetologists
Society for the Study of Amphibians and Reptiles
Herpetologists League
Society of Systematic Biologists
Chicago Herpetological Society
Inland Empire Reptile and Amphibian Society – Vice President from 1997-1999

## GRANTS AND AWARDS

**Chicago Herpetological Society,** 2002 Herpetological Grant Awarded for Proposed Survey to Determine the Distribution and Status of the Arroyo Southwestern Toad (Bufonidae: *Bufo californicus* Camp) in Baja California, México
**Bob Adams Student Paper Award**, 1999 Desert Research Symposium, San Bernardino County Museum.
**Research Assistantship**, 1997-1999 Loma Linda University Graduate School Awards

## CONTRIBUTED TALKS AND SYMPOSIA

**2005** – Lovich, R., M. Ryan, and N. Scott. Status of *Atelopus varius* within a biological corridor in South-central Pacific Costa Rica. American Society of Icthyologists and Herpetologists Herpetologist's League, and Society for the Study of Amphibians and Reptiles Annual Joint Meetings.
**2005** – The Status and Distribution of the Arroyo Toad (*Bufo californicus*) and other amphibians in the rivers of northern Baja California. Palomar Audubon Society. May, 2005.
**2005** – First Meeting of California Partners in Amphibian and Reptile Conservation. **February at San Diego Zoological Society.**
**2004** – A new strategy for monitoring arroyo toad populations. Brehme, Cheryl S., Atkinson, A., Lovich, R., And R.N. Fisher. Western Section of the Wildlife Society Annual Meeting. Rohnert Park, CA.
**2003** – Natural Resources and Military Training: Striking the Balance at Camp Pendleton. San Diego State University Seminar in Biology. 5/5/03.
**2003** – The Plight of the Arroyo Toad (*Bufo californicus*) and other amphibians in the rivers of northern Baja California: Tales of Sapos, Tacos, and Random Encounters. American Fishe

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Society Annual Meeting, San Diego, CA 4/15/03.
**2003** – Herpetofaunal Habitat Use among Shared Species in Sonoran, Mojavean, and Coastal Military Lands in Southern California. The Western Section of the Wildlife Society, Annual Meeting. Irvine, CA. 2/28/03

**2002** – Distribution and Status of the Arroyo Southwestern Toad (Bufonidae: Bufo californicus Camp) in Baja California, México. American Society of Icthyologists and Herpetologists Herpetologist's League, and Society for the Study of Amphibians and Reptiles Annual Joint Meetings.
**2002** – Hop, Slither, or Crawl? Contrasting Corridors for Herpetofauna. Invited speaker for 'South Coast Missing Linkages: Habitat Connectivity Planning for the South Coast Ecoregion' workshop.
**2002** – Camp Pendleton's Herpetofauna: Tracking the Success of Upland Management Practices in a Vanishing Landscape. The Wildlife Society – Western Section Annual Meeting
**2001** – Reptiles and Amphibians of Southern California: More Diversity than Meets the Eye! Invited speaker for the Chicago Herpetological Society. Chicago, Illinois
**2001** – Terrestrial fauna community composition of *Arundo donax* (Poaceae) root masses. 15th Annual Meeting of the Society for Conservation Biology. Hilo, Hawaii, USA
**2000** – **Organized:** Natural History and Evolution of the Reptiles and Amphibians of Baja California. Sponsored by the American Society for the Study of Amphibians and Reptiles. La Paz, Mexico. Symposium organized by Robert Lovich, M.S. and Robert Fisher, PhD.
**2000** – Proposed genetic analysis of the arroyo toad (*Bufo californicus*). Marine Corps Base Camp Pendleton Arroyo Toad Symposium. 10/5/00.
**1999** – Phylogeography of the granite night lizard (*Xantusia henshawi*). International Herpetological Symposium 23rd Annual Meeting. San Diego, California.
**1999** – Phylogeography of the granite night lizard (*Xantusia henshawi*). San Bernardino County Museum Quaternary Desert Research Symposium.
**1996** - An Inventory of native brook trout (*Salvelinus fontinalis*) populations along the upper west branch of the Susquehanna River. Albert Tester Symposium, University of Hawaii at Manoa.
**1996** – Populations of the endangered species Ihi'ihilauakea (*Marsilea villosa*) and Recommendations for its Survival along the Ka Iwi coast. Ka Iwi Action Council Meeting. Honolulu, Hawaii

## SYMPOSIA AND WORKSHOPS ATTENDED

**2003** – The Wildlife Society – Western Section Annual Meeting
**2002** – South Coast Missing Linkages: Habitat Connectivity Planning for the South Coast Ecoregion
**2002** – The Wildlife Society – Western Section Annual Meeting
**2001** – California Exotic Pest Plant Council Symposium. San Diego, CA, USA.
**2001** – 15th Annual Meeting of the Society for Conservation Biology. Hilo, Hawaii, USA.
**1997- 2000, 2002, 2004, 2005** – American Society of Icthyologists and Herpetologists Herpetologist's League, and Society for the Study of Amphibians and Reptiles Annual Joint Meetings.

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**2000** – Planning for Biodiversity: Bringing Research and Management Together. Pomona, CA
**1999** – Population viability analysis (PVA) conference and workshop. Sponsored by University of California, Berkeley. San Diego, CA
**1998** – Herpetology of the Californias 1st Annual Klauber Symposium. San Diego Natural History Museum. San Diego, California
**1998** – Declining Amphibian Populations Workshop at the San Diego Natural History Museum. San Diego, California
**1996** — Desert Tortoise Council. Attended the Desert Tortoise Council Workshop in Ridgecrest, California on October 26-27, 1996. Received USFWS approved courses in handling of tortoises

## HOBBIES AND INTERESTS

-Classic American musclecar restoration.
-Outdoor recreation activities including hiking, camping, fishing and surfing
-Wildlife Photography
**International travel experience** – Costa Rica, France, Italy, Germany, Monaco, Mexico, Canada, Japan, Haiti, Thailand, South Korea, Hong Kong, Malaysia, Singapore, Puerto Rico, US Virgin Islands, and extensive travel throughout the United States

## REFERENCES

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# The California Chaparral Institute

*…the voice of the chaparral*

January 22, 2008

Chairman Patrick Kruer
ATTN: Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

**Re: Fire Impacts, Foothill Transportation Corridor-South**

Dear Chairman Kruer and Members of the Commission:

I am a trained wildland firefighter and have studied for more than 20 years the shrubland plant communities through which the proposed Foothill Transportation Corridor is planned to be built.

The Coastal Commission's staff report correctly concluded that the toll road would "increase the likelihood of fires occurring within gnatcatcher habitat surrounding the toll road route." The TCA's response that the project would "not substantially increase the risk of wildfire" is simply unsupported.

TCA notes that the "entire alignment would be fenced, in part, to restrict access from adjacent land uses." But the absence or presence of fencing has nothing to do with whether or not a road increases fires risk. The mere presence of vehicles and associated passenger activities, accidents, and equipment malfunctions dramatically increase fire risk. This is why so many fires originate next to roads. For example, road activity is one of the primary causes of fire starts within the Cleveland National Forest. I have attached a map showing the origins of fires within the Descanso Ranger District of the Cleveland National Forest. As you can see, a significant percentage of fire starts occur along the I-8 corridor (USFS 2007).

To state that the presence of a major road like the proposed Foothill-South in a fire-prone shrubland ecosystem would not increase fire risk is contrary to all the data concerning wildland fires in southern California (UWM 2006).

P.O. Box 545, Escondido, California 92029 ▪ 760.822.0029
www.californiachaparral.org

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TCA's argument that the toll road would provide access to firefighters, might act as a fire break, and would include mitigation measures such as warning signs and call boxes, does not mitigate the increased fire risk the road would cause. During increasingly frequent extreme fire weather conditions, wind-driven wildland fires usually jumped multi-lane interstate highways. And while firefighting resources can certainly use the toll road, the increased fire risk the road brings to the landscape is not an acceptable trade off. The TSA's reference to the 2007 Santiago Canyon fire and the 2006 Anaheim Hills fire as evidence large roads can be an advantage during wildfire events, is not compelling. **The Santiago fire jumped over the 241 Toll Road several times.** The more important issue is that *we could dramatically reduce fire starts in the first place* by eliminating roads through fire-prone environments.

Sincerely,

Richard W. Halsey
Director

Cited references

USFS (2007). Fire Starts, 1970-Present (2007). Map of fire starts in the Cleveland National Forest, Descanso Ranger District. USFS. Attached.

UWM (2006). University of Wisconsin-Madison (2006, December 28). New Maps Emphasize The Human Factor In Wildfire Management. *ScienceDaily*.

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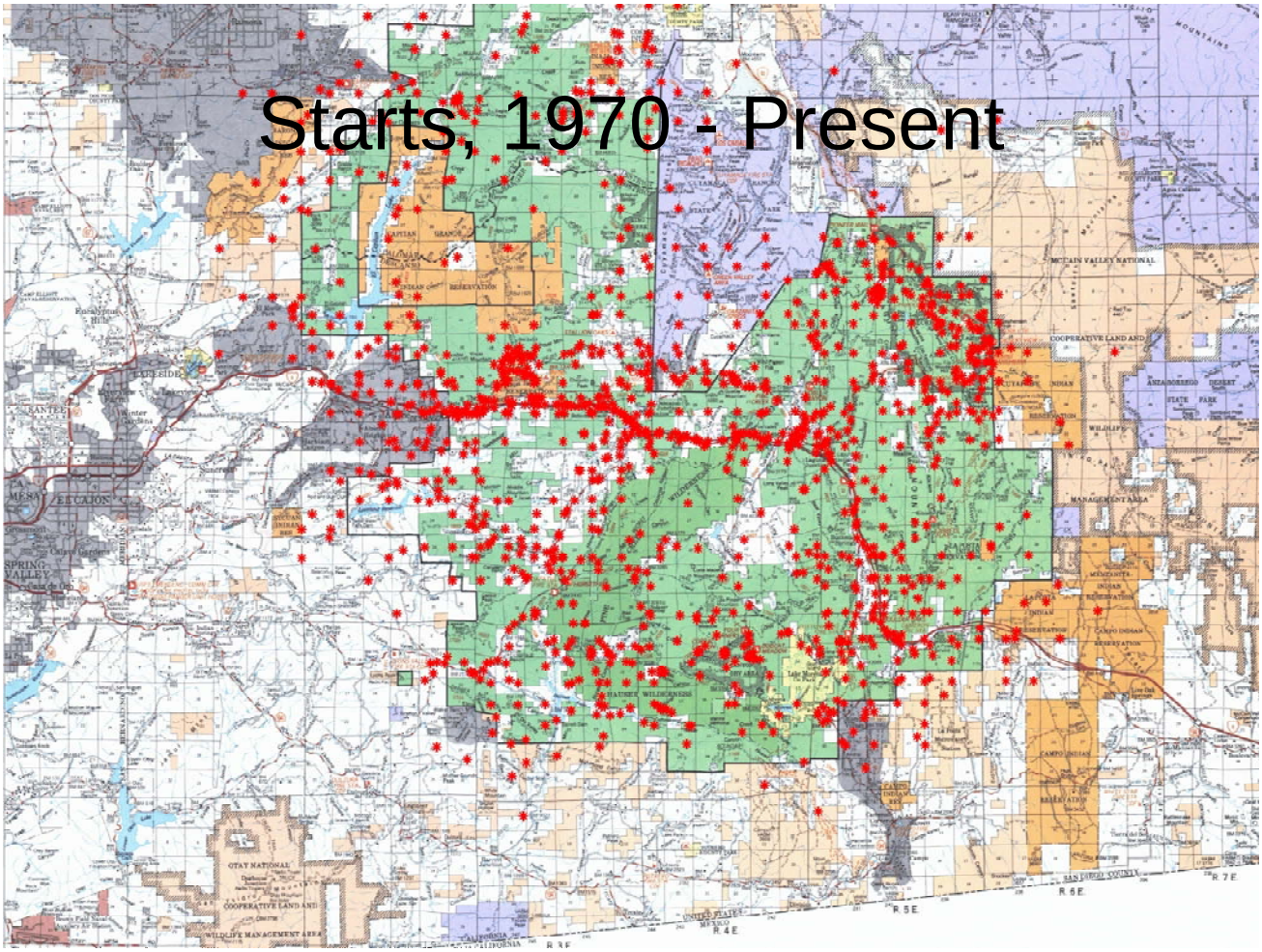


Fire Starts in the Cleveland National Forest, Descanso Ranger District. Note number of fire starts along the Interstate Highway 8 corridor, marked by the dark line running through the center of the map. Data source: USFS.



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# U. S. Department of the Interior
# U.S. Geological Survey
## Western Ecological Research Center
**Sequoia-Kings Canyon Field Station**
47050 Generals Highway
Three Rivers, California 93271-9651
(559) 565-3170; Fax -3177


Chairman Patrick Kruer
ATTN: Mark Delaplaine
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

22 January 2008

Dear Chairman Kruer and Members of the Commission:

I am a research scientist with over 30 years experience in the study of fires in southern California shrublands and would like to comment on the potential impacts of the proposed extension of the Foothill toll road through the Rancho Mission Viejo and San Onofre State Beach.

We live in a part of the world where humans play the dominate role in determining when and where fires occur. In southern California several studies have shown that fires are over-whelmingly tied to roads. In many parts of the region a map of where fires ignite is often nearly a carbon copy of a road map. These fires come about through both accidental ignitions such as sparks from catalytic converters as well as carelessness of discarded cigarettes. It is a well established fact that when new roads are established they bring with them a greatly increased incidence of fires.

Although roads on the scale of the toll road have the potential for acting as a fire break, which diminishes fire spread, this is generally only true under moderate weather conditions. However, under the weather conditions that lead to our most destructive fires, roads and even major highways seldom act as a barrier to fire spread.

In short, when considering projects such as this new road, it is important that the commission factor in the likelihood of increased fire incidence on the landscape and the costs this will likely have both on communities as well as the devastating impacts that frequent fires have on natural resources.

Sincerely yours,

Jon E. Keeley


Jon E. Keeley
Research Ecologist
&
Adjunct Full Professor
Department of Ecology and Evolutionary Biology
University of California, Los Angeles


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Bergmann associates

# Memorandum

TO: Elizabeth Goldstein, President, California State Parks Foundation

FROM: Peter Melewski, PE, Principal & Philip J. Clark, PE, Staff Consultant

DATE: January 23, 2008

**RE: Peer Review of Smart Mobility's Report entitled: "An Alternative to the Proposed Foothill South Toll Road, The Refined AIP Alternative" - January, 2008**

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**Objective:**

Bergmann Associates, pursuant to requests by the California State Parks Foundation and the Endangered Habitats League, has conducted a limited peer review of the above-referenced document (the Report). The peer review focused on the interchange design concepts, their operation, and associated property acquisition impacts. Design concepts for I-5 cross sections and arterial improvements were also reviewed. Bergmann Associates did not review the Runoff Management Plan or the discussion of future enhancements to the AIP-R Alternative

**Reviewers:**

The Peer Review was conducted by Philip J. Clark, PE, former Deputy Chief Engineer and Director of Design for the New York State Department of Transportation, and Peter M. Melewski, PE, former Director of Design and Superintendent of Maintenance for the New York State Thruway Authority. Also providing valuable input was Mark J. McAnany, PE, Manager of the Bergmann Transportation group. Mr. Clark field reviewed the project site on January 9, 2008.

Mr. Clark was a career employee of the New York State Department of Transportation prior to his retirement in the fall of 2006. During the preceding fifteen years, he was also a member of the American Association of State Highway and Transportation Officials' (AASHTO) Technical Committee on Geometric Design which authors AASHTO's "A Policy on Geometric Design of Highways and Streets". The "Green Book", as it is often referred to, is the national policy and guide used as the basis for design by all fifty states and the Federal Highway Administration (FHWA). Mr. Clark was also a member of the AASHTO Joint Task Force that authored "A Guide for Achieving Flexibility in Highway Design".

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Mr. Clark's experience base for this peer review includes widening and reconstruction of the Long Island Expressway, reconstruction of the Cross Westchester Expressway, reconstruction of the Southern Tier Expressway to convert it to Interstate 86, and the Route 219 expressway extension south of Buffalo.

Mr. Melewski was employed by the New York State Thruway Authority, the longest toll road in the United States, for almost 24 years prior to joining Bergmann Associates as a Principal in the Spring of 2006. As the Director of Design, he oversaw the development and implementation of all highway, bridge, environmental, canal and ITS capital projects. He also served as the Superintendent of Maintenance, responsible for the oversight of maintenance and infrastructure management issues throughout the entire 641 mile system. Mr. Melewski has served on several national panels on transportation issues for organizations such as AASHTO and NCHRP (National Cooperative Highway Research Program).

Mr. Melewski also served as Executive Project Manager for the Tappan Zee Bridge/I-287 Corridor Study – a $50M study to review multi-modal alternatives estimated in the billions of dollars for a critical transportation corridor north of New York City. He also supervised in-house and consultant teams working on major interchange reconstruction and mainline widening/ reconstruction projects across New York State.

**Background:**

The Arterial Improvements Plus (AIP) alternative, was one of the many alternatives evaluated as part of the Foothill/Eastern Transportation Corridor Agency (TCA) Supplemental Environmental Impact Report ("SEIR") for the proposed Foothill South Toll Road Extension. The AIP alternative proposed targeted widening of Interstate Route 5, interchange modifications, and improvements to existing arterials in lieu of constructing a toll road through open space and a state park. The SEIR concluded that the AIP alternative performed similarly to the proposed toll road alternative with regard to enhanced mobility and reduced congestion. However, it was rejected from further consideration due to the costs of property acquisition, and home/business displacement.

Smart Mobility's Report presents a refined conceptual design for the AIP alternative, described as "AIP-R", that they claim provides traffic benefits similar to the original AIP, while substantially reducing the property acquisitions identified in the SEIR. The Report concludes that the AIP-R's ability to enhance regional mobility and resolve congestion is similar to that of the toll road alternatives, but will do so without the significant loss of valuable, finite environmental and recreational resources that the toll road alternatives would cause to occur.

**General Overview:**

In the project area, I-5 is characterized by heavy development immediately adjacent to the existing highway boundary and many areas where the terrain rises or falls sharply from the edge of the roadway. Under these circumstances, a relatively small change in the design approach for proposed improvements can make a considerable difference in right-of-way impacts.

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A reliable assessment of right-of-way impacts requires development of specific roadway and interchange geometrics including profiles and cross sections. This allows determination of grading limits and, hence, required right-of-way. Smart Mobility was unable to find such detailed studies by TCA for the AIP alternative and did not undertake such studies for their proposed revisions. The location and preliminary layout of major drainage features, particularly storm water retention basins, must also be determined.

Smart Mobility makes a strong case that improvements could be made by TCA to the AIP alternative that have great potential to greatly reduce the displacement of people and businesses while at the same time preserving its operational benefits. Their concepts for the various improvements are enhanced by the fact that they build off of traffic information, constraints, and opportunities already presented by TCA in the SEIR and related documents.

Smart Mobility's proposals reflect innovative concepts and context sensitive treatments that are endorsed and encouraged by the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and others. The proposals do so while at the same time addressing the overall objective for the project as stated in SEIR Section 1.5.2, Purpose of the Project, and concisely stated as "Improve the projected future LOS and reduce the amount of congestion and delay on the freeway system and, as a secondary objective the arterial network, in Southern Orange County".

The concepts presented in the AIP-R proposal warrant renewed development and refinement by TCA as a part of the on-going environmental review process. There is significant potential to reduce property acquisition impacts through improvements like those suggested in the report, as well as other innovations that could be developed by TCA. Not all those improvements suggested by Smart Mobility may prove out, but the potential is great for great improvement to the alternative through renewed efforts by TCA.

The philosophy that TCA should adopt and the challenge they should accept is to develop a revised AIP alternative that Caltrans would be expected to develop if the toll road alternatives did not exist. Only then will an appropriate comparison to the toll road alternatives be possible.

Certainly, Caltrans would employ innovative and context sensitive approaches to reduce right-of-way acquisitions to the absolute minimum practical. TCA can do the same.

Additionally, if the Foothill South Toll Road is constructed, it is likely that many of the operational and safety problems that the AIP alternative would have resolved along I-5 will remain. Some, if not all, of these problems will still need to be addressed.

Accordingly, the construction costs and right-of-way impacts and costs associated with these improvements need to be estimated by TCA and added to the cost of the toll road alternatives in order to allow a true comparison between alternatives. If similar circumstances exist relative to the ancillary arterial improvements included in the AIP alternative, their construction costs and right-of-way impacts and cost should also be added to the overall cost of implementing toll road alternatives.

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**Displacement Impacts and Costs:**

- The four general examples presented in Smart Mobility's Report relative to roadway widenings make a strong case that right-of-way impacts at these locations could be greatly reduced.

- If these examples are typical of TCA's general approach when making their assessments for the AIP alternative, Smart Mobility's contention that right-of-way impacts could be greatly reduced is well founded.

**Interchange Concepts:**

General

- Ramp configurations at many of the existing interchanges do not meet current-day standards. This, in itself, does not mandate reconstruction. The Forward to the AASHTO Green Book which has been adopted by FHWA as a national policy states, "The fact that new design values are presented herein does not imply that existing streets and highways are unsafe, nor does it mandate initiation of improvement projects..." Unlike new construction, the existing features of the highway and its interchanges, etc., have an operational and safety history upon which to analyze the need for improvements where problems may exist. Crash histories should be studied by TCA to determine to what extent geometrics are contributing to the problem. Often, the primary cause of crashes is related to ramp terminal design issues at mainline or crossroad interfaces. These problems can frequently be substantially resolved within existing right-of-way. In addition, single vehicle run-off-the-road crashes due to existing tight ramp radii tend to be less serious relative to personal injuries than crashes at ramp terminals which usually involve multiple vehicles. Many highway agencies currently emphasize reducing the number of crashes that result in serious injury as opposed to simply reducing the number of crashes. In the face of substantial right-of-way impacts, strong consideration should be given to retention of existing non-standard ramp geometrics when they are not significantly contributing to a serious crash problem. Reconstructing ramps to less than standards, but improved over existing, should also be considered if doing so will not result in unacceptable right-of-way impacts.

- The Report's adaptive approach for refinements to proposed detention basin configurations has the potential to eliminate many of the property impacts quantified under the original AIP alternative, where TCA typically applied a generic rectangular basin regardless of the impacts that resulted.

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Alicia Parkway

- Smart Mobility's suggestion that refinements be made to retention basin design to better fit the interchange geometry is valid. Open areas typically available within interchanges often allow storm water retention basins to be built without displacements of people and businesses.

La Paz

- Smart Mobility's suggestion that the existing interchange configuration be retained warrants consideration. A study of the operational and safety history of the interchange by TCA will determine the appropriateness of this approach.

- There is an opportunity, via use of retaining walls, to enhance the I-5 SB off-ramp geometry without requiring the indicated building acquisitions.

Crown Valley Parkway

- The AIP-R alternative first suggested for this location, a single point diamond interchange, is not detailed in the Report, but should be investigated for the location if the issues described below relative to the flyover cannot be satisfactorily resolved..

- The AIP-R flyover proposal for this location has potential to greatly reduce property impacts.

    - To avoid the need to change the elevation of the Parkway, the flyover ramp must pass under Crown Valley at approximately the same elevation as I-5. It will likely then have to rise on a structure in order to achieve sufficient elevation to cross over I-5 and still allow space for the adjacent southbound on-ramp. It appears the flyover ramp may have to extend further south than shown in order to achieve sufficient elevation to cross over I-5 and the northbound off-ramp.

    - Potential noise and visual impacts associated with the flyover ramp would need to be evaluated as this is a new, elevated-highway element.

    - The added cost of the flyover should be considered against the reduced right-of-way impact that can be achieved.

Ortega

- The City of San Juan Capistrano proposals should be checked for adequacy versus projected 2025 design year traffic volumes.

- A single point diamond interchange should be considered for this location if additional capacity is necessary.

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Avenida Pico

- The proposed single point diamond interchange, under alternative AIP-R, has merit and is a viable alternative to be evaluated for implementation at this constrained location.

- The City of San Clemente design presents additional detail for the potential single point diamond interchange layout.

El Camino Real

- After reviewing the ramp volumes, it is not clear to the reviewers why such an expansive interchange with extensive property impacts at great costs was identified for consideration in the SEIR.

- Smart Mobility's proposed concept will result in an interchange configuration that has the northbound on and off ramps isolated from the southbound on and off ramps. Although it is usually more desirable to have on and off ramps more proximate, unless there is a crash history related to the current configuration, the extensive right-of-way impacts to rebuild the interchange as proposed by TCA does not appear warranted.

- Smart Mobility's proposed concept appears well founded and is a design approach that should be developed further.

- The possible elimination of northbound I-5 ramps to provide space for I-5 widening has merit. The current ramp separations are undesirably short and complicate weaving and traffic operations along I-5 at this location. Both sets of ramps do not seem warranted by the existing and projected traffic volumes.

- Closure of existing ramps is usually controversial.

**Arterial Improvements:**

- Smart Mobility makes a strong case that the right-of-way takings along arterials as depicted by TCA could be greatly reduced.

- Smart Mobility makes a valid observation that retaining walls could be used along arterials to minimize right-of-way impacts.

- Smart Mobility's observations concerning the viability of at-grade intersection concepts developed by TCA make a good case that the proposed flyovers are not necessary.

- Although intersection levels of service (LOS) are "D" and "E" in some instances, levels of service as low as "F" are deemed acceptable in the SEIR. Under Section 1.5.2, Purpose of the Project, when discussing objectives, provision is made for [illegible] which lead to a reduction in the length of time LOS F will occur, even if th[illegible]

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still operate at LOS F for a short period of time, if the strategy will result in benefits to the traveling public and more efficient movement of goods because it reduces total delay..."

**I-5 Cross Section Concepts:**

- At the Calle Porta, San Clemente location, Smart Mobility suggests shifting the mainline of I-5 along an existing curve to confine residential property acquisitions to one side of the highway instead of two. This warrants further consideration by TCA, including other locations where this concept might be applicable.

- Smart Mobility proposes that the "road diet" concept be applied to certain frontage road locations along I-5 as a means to provide space for some of the I-5 widening and therefore reduce right-of-way acquisition and displacement of people and businesses. This concept involves reducing the numbers of lanes that currently exist on the frontage roads to the lowest number necessary to accommodate traffic volumes at an acceptable level of service.

- Lower levels of service are often deemed acceptable in return for reduction in right-of-way impacts. Although Smart Mobility's proposed concept may not provide all the space necessary for widening I-5, it has good potential to reduce the right-of-way required.

- Reducing levels of service on adjacent roadways to provide less congestion on a major principal arterial such as I-5 warrants consideration.

- Additional traffic studies will be necessary to determine the applicability of the "road diet" recommendation, but given the potential for a narrowed cross section to reduce right-of-way impacts, these studies should be undertaken by TCA.

**Conclusions:**

**Displacement of people and businesses for the AIP alternative can be markedly reduced.** Smart Mobility, utilizing representative examples of possible modifications to the AIP alternative, presents a strong case that there are numerous alternative approaches to the TCA design that have solid potential to greatly reduce the overall right-of-way impact and cost.

**Detailed studies are necessary to determine the extent to which displacements can be reduced.** Along a highway such as I-5, characterized by heavy development immediately adjacent to the existing highway boundary, a relatively small change in the design approach for proposed improvements can make a huge difference in right-of-way impacts. The extent to which displacements of people and businesses could be reduced for the AIP alternative can only be reliably determined through a renewed effort by TCA to explore a broad range of opportunities to do so. Some possibilities have been suggested by Smart Mobility and there are likely others that TCA could discover.

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**Comparison between the AIP alternative and the toll road alternative are inconclusive until detailed studies are complete.** The AIP alternative as developed by TCA does not demonstrate the level of innovation and context sensitivity typically undertaken for projects in a tight urban environment characteristic of the I-5 corridor and its ancillary arterial network. Until TCA undertakes a study that demonstrates innovation and context sensitivity, their estimate of right-of-way impacts for the AIP alternative should be considered invalid and much greater than necessary.

**The costs and impacts for the toll road alternatives as presented in the SEIR are not representative of actual circumstances.** If the toll road is constructed, it is likely many of the operational and safety problems that the AIP alternative would have resolved along I-5 and at arterial intersections will remain. Some, if not all of these problems will still need to be addressed. The construction cost, and right-of-way cost and impacts for this work are elements of the overall true cost and impact of the toll road alternatives. Only when these are included in the analysis can a truly representative comparison be made between toll road alternatives and a revised AIP alternative.

**A refined AIP alternative should be presented in the SEIR.** Considering the high marks that the original AIP was given in the SEIR, other than the right-of-way impacts, and given that the Report suggests viable ways of significantly reducing the extent of right-of-way impacts, it is apparent that the AIP-R concepts and other refinements should be thoroughly pursued, developed, and presented in the SEIR by TCA before a final recommendation is made to decision makers.

Sincerely,

Peter M. Melewski, PE
Principal

Philip J. Clark, PE
Staff Consultant

CC: Michael Fitts, Endangered Habitats League
Mark McAnany, Bergmann Associates

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