FEHR PEERS

MEMORANDUM

Date: June 13, 2018

To: Rita Brandin, Newland Communities

From: Katy Cole, Fehr & Peers

Subject: Addendum to Newland Sierra VMT Analysis to Respond to SB 743

SD16-0219

This addendum supplements the "Newland Sierra VMT Analysis to Respond to SB 743" (Appendix R2 to the Newland Sierra Draft EIR). In April 2018, the Office of Planning and Research (OPR) issued an update to the technical advisory entitled *OPR Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) on the subject of analyzing Vehicle Miles Traveled (VMT) under CEQA in response to Senate Bill 743. The OPR Technical Advisory was released in response to additional feedback from cities, counties, and other interested parties within California on the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (OPR Draft Guidance). The OPR Technical Advisory provides additional guidance for analyzing impacts pursuant to SB 743, including induced travel/induced VMT from road capacity enhancements.

In response to comments on the Newland Sierra Project Draft EIR and consistent with the additional guidance provided by the OPR Technical Advisory on induced VMT, additional analysis/information related to the potential induced VMT effects from the subject road improvements is presented herein.

NEWLAND SIERRA PROJECT ROAD IMPROVEMENTS

The Newland Sierra Project proposes road improvements (identified as mitigation for the project's direct and cumulative traffic impacts in the Newland Sierra Draft EIR), including a new and expanded 0.2-mile-long interchange at I-15/Deer Springs Road, widening approximately 2.2 miles of Deer Springs Road from two to four lanes (under Deer Springs Road Option B), and widening 0.6-mile of Twin Oaks Valley Road from two to four lanes (herein referred to as the "subject road improvements" or "road improvements"). The total number of lane miles that would be added as a result of the subject road improvements is approximately 6.0 miles (i.e., the total length is approximately 3.0 miles multiplied by 2 new lanes, one in each direction, which equals 6.0 miles).

The subject road improvements also include the following related improvements:

- New eight-foot-wide Class II bike lanes along both sides of Deer Springs Road and Twin Oaks Valley Road
- New ten-foot-wide multi-use pathway along Deer Springs Road and Twin Oaks Valley Road that connects to the existing ten-foot-wide multi-use pathway along the improved portion of Twin Oaks Valley Road
- Class I bike path along Twin Oaks Valley Road
- Improvements to the Park-and-Ride facility at the I-15/Deer Springs Road interchange, including electric vehicle charging stations, bicycle facilities, lockers for travelers, and other amenities to support carpooling and non-motorized travel, as well as an expansion of the parking capacity at the Park-and-Ride

The proposed Newland Sierra project also includes a Transportation Demand Management (TDM) Program with a community-sponsored shuttle service that will provide pick-up and drop-off services within the project's neighborhoods, at Twin Oaks Elementary School along Twin Oaks Valley Road (subject to coordination with San Marcos Unified School District), and at the Escondido Transit Center (or San Marcos Civic Center Sprinter Station). The project also proposes an electric bike-share program free to all of its residents and guests, the incorporation of electric vehicle charging stations within its commercial parking areas and other community/public parking areas, and electric vehicle chargers in all residential garages.

INDUCED VMT CONSIDERATIONS FROM THE OPR TECHNICAL ADVISORY

Appendix 2 of the OPR Technical Advisory addresses induced travel and identifies five factors (items) that contribute to overall induced travel for a project, summarized as follows:

1. Changes in Trip Length: Roadway capacity could result in the ability to travel a longer distance in a shorter period of time, thereby making farther away destinations more attractive and resulting in longer trip lengths and more VMT.
2. Changes in Mode Choice: Roadway capacity could result in reduced automobile travel time, causing people to shift to automobile use from other travel modes, resulting in more auto trips and increased VMT.
3. Route Changes: Faster travel time may attract more drivers to a route with expanded capacity, which can increase or decrease vehicle travel depending on whether it shortens or lengthens trips.

4. Newly Generated Trips: Increasing travel speeds from added roadway capacity could induce additional vehicle trips, resulting in increased VMT.

5. Land Use Changes: Faster travel times from added roadway capacity could lead to land development farther out on the corridor, leading to a long term incremental increase in trip lengths, resulting in increased VMT.

Appendix 2 of the OPR Technical Advisory provides technical guidance on methods to analyze induced travel. The methods described utilize research-based elasticities or a travel demand model such as the SANDAG's Series 12 or 13 Transportation Forecasting Model. Each method is described separately below.

ELASTICITY BASED METHOD

There are several studies that have demonstrated a causal link between increases in road capacity and increases in VMT (i.e., induced travel). Most of the studies express the amount of induced travel as an elasticity, which is a multiplier that describes the additional vehicle travel resulting from an additional lane mile of road capacity. The elasticity is expressed for both the near term and long term effects of additional capacity on induced travel, although the available studies have certain limitations:

- The induced travel is not expressed in terms of the five contributing factors or items described above, but rather it is just one elasticity that is intended to encompass all of them. There is no data that describes exactly how much induced travel results from each of the contributing factors.
- Using the elasticity to calculate induced VMT always results in a net increase in VMT, which may not be the case for certain projects. For example, Item 3 above, Route Changes, recognizes that a route change could result in a shorter travel distance. This shorter distance could result if the route that had a capacity increase, and now attracts more vehicles, is shorter than the alternate route. In this situation, the VMT in the region would decrease rather than increase.

TRAVEL DEMAND MODEL METHOD

The second method available to analyze induced demand is through a regional travel demand model. A regional travel demand model forecasts traffic volumes based on land use and assigns traffic volumes to the road network based on roadway characteristics such as road capacity and speed. The model uses the trip generation and trip lengths to report VMT. Travel demand models are effective at capturing trip length changes, travel mode changes, and route changes (Items 1-3 above) due to a road capacity improvement. However, some of the limitations of using a travel demand model are:

- Not all travel demand models have sensitivity to newly generated trips (Item 4).

- Travel demand models necessarily cannot account for the road project's effect on unplanned land use (Item 5).

OTHER CONSIDERATIONS

Section F of the OPR Technical Advisory, *"Considering the Effects of Transportation Projects on Vehicle Travel"*, identifies the following as *"(roadway) projects that would not likely lead to a substantial or measurable increase in vehicle travel…"*:

- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit.
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way.
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel.
- Installation of publicly available alternative fuel/charging infrastructure.

INDUCED VMT DUE TO SUBJECT ROAD IMPROVEMENTS

This section describes how the subject road improvements may contribute to induced VMT in the context of each of the five factors, or items, described above.

Preliminarily, the induced VMT analysis prepared for the Draft EIR used the elasticity-based formula described in the OPR Draft Guidance to analyze how the subject road improvements would potentially result in induced VMT. As previously explained, use of the elasticity-based formula assumes that all road capacity enhancing projects increase VMT (i.e., result in induced VMT). As a result, this formula ignores certain VMT reducing benefits of road capacity enhancing improvements that have the potential to reduce trip lengths for existing and forecasted future traffic, and ignores road capacity enhancing improvements that also include bicycle lanes, multi-use pathways, or other multimodal improvements that are likewise shown to reduce VMT. Therefore, application of the elasticity-based methodology to road capacity enhancing projects that also incorporate significant new multi-modal features, such as dedicated bike lanes and multi-use pathways, likely overstates the effects of the road project on induced VMT.

To this latter point, the subject road improvements recommended to mitigate the Newland Sierra project's traffic impacts are consistent with several of the road project types identified in the OPR Technical Advisory that would not lead to a substantial or measurable increase in vehicle travel.

Specifically, the subject road improvements include bike lanes, a multi-use path, and improvements to the Park-and-Ride facility. Therefore, and notwithstanding the induced VMT results presented in Appendix R2 of the Draft EIR using the elasticity-based methodology, the bicycle and pedestrian features of the project's road mitigation measures and project design features reasonably should be considered as part of the analysis to contribute to reducing the project's potential to induce VMT.

CHANGES IN TRIP LENGTH, MODE SHARE, & ROUTE CHANGES (ITEMS 1-3)

Travel demand models can capture trip length changes, travel mode changes, and route changes. SANDAG Series 12 Year 2020 and Year 2035 Modeling was performed to measure the short-term and long-term changes, respectively, in regional VMT that would result from the subject road improvements (widening of Deer Springs Road and Twin Oaks Valley Road to four lanes and the improvements to the I-15/Deer Springs Road interchange). For each scenario, two models were run, one based on the existing configuration of the I-15 / Deer Springs Road interchange, Deer Springs Road, and Twin Oaks Valley Road, and a second model run that incorporates the subject road improvements. The General Plan land uses were included in the model runs for with and without roadway improvements. The Newland Sierra project land uses were not included because the purpose of the exercise was to isolate VMT changes due to just the road improvements. Modifying the land use would influence the ability to specifically measure the VMT effects of the road improvements. Table 1 summarizes the modeling results.

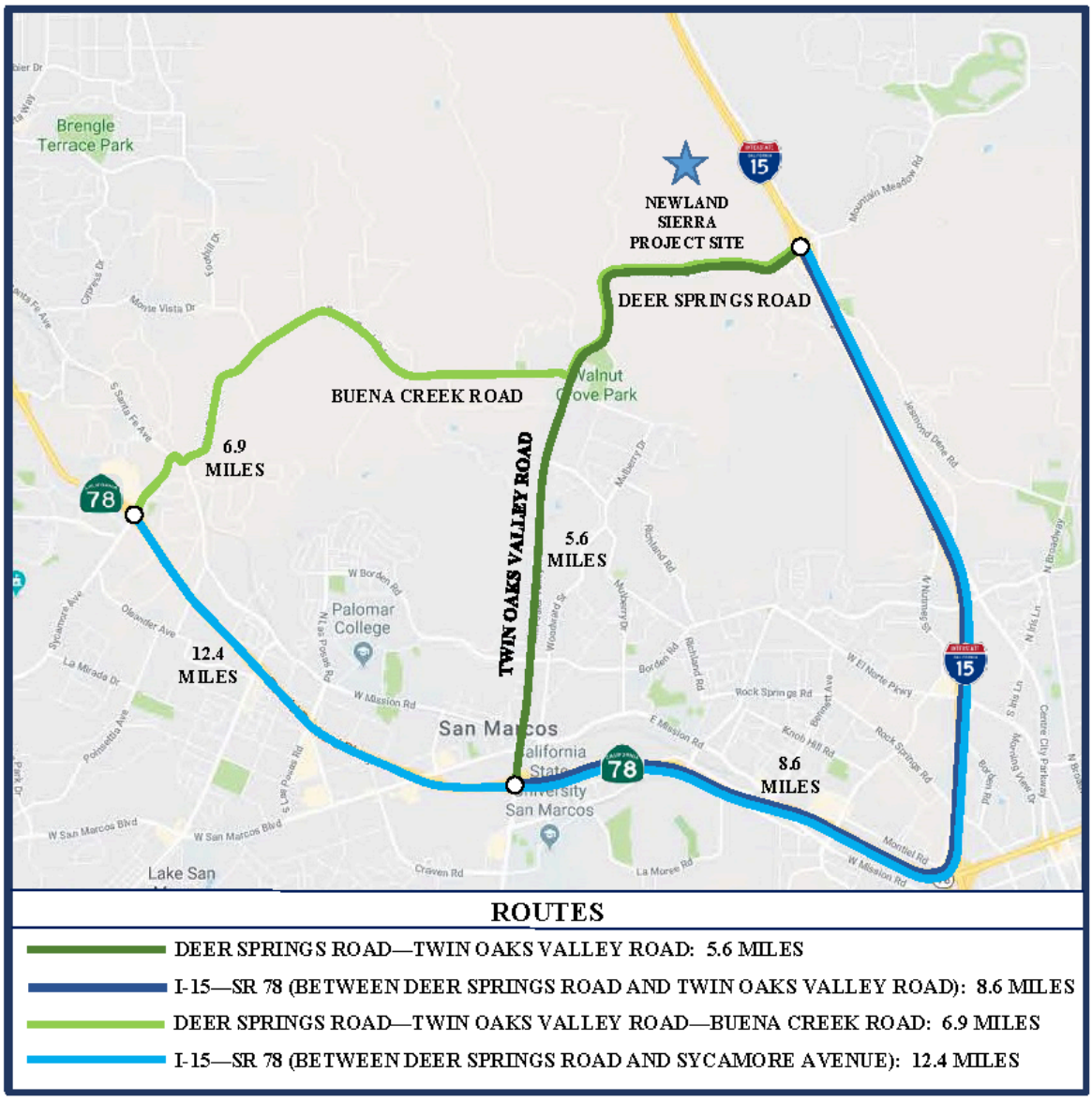
TABLE 1:
DAILY REGIONAL VMT
2-LANE VS. 4-LANE NETWORK

Model	Regional VMT Based on Existing Road Network *	Regional VMT Based on Subject Road Improvements	VMT Change
Series 12 Year 2020	86,339,453 VMT	86,338,386 VMT	-1,067 VMT
Series 12 Year 2035	102,515,544 VMT	102,509,767 VMT	-5,777 VMT

* Based on Existing Configuration for Deer Springs Road, Twin Valley Oaks Road, and the I-15/ Deer Springs Road Interchange
Source: SANDAG

As shown in Table 1, the subject road improvements would result in a decrease in regional VMT under both the short-term and long-term scenarios. This is due, in-part, to an improved Deer Springs Road and Twin Oaks Valley Road serving as shorter, more direct routes to shopping and employment centers along the State Route (SR) 78 Corridor for those southbound travelers on I-15 destined for westbound SR-78 (refer to Figure 1 below which shows a comparison of route length in miles to the same two points using surface streets versus the freeways).

FIGURE 1: SURFACE STREET VERSUS FREEWAY ROUTES



Note, however, that because the Regional VMT results presented in Table 1 were obtained using a travel demand model, the results do not necessarily account for the potential that the subject road improvements would result in an increase in vehicle trips from existing land uses (i.e., the existing communities of Twin Oaks, Hidden Meadows, Buena Creek, Bonsall, the City of San Marcos, and other communities in the surrounding area that use Deer Springs Road and Twin Oaks Valley Road). The reduced travel times associated with the roads in an improved condition could stimulate more vehicle trips from the surrounding area using these roads and the surrounding road network. For example, a trip from Hidden Meadows to downtown San Marcos that takes 30 minutes under existing conditions but only

takes 15 minutes when the roads are widened and improved could stimulate a net increase in vehicle travel on the road network which could increase Regional VMT. Nor do the results account for the potential for the road improvements to induce unplanned land use changes within the surrounding area. The potential for these two outcomes not captured by a travel demand model is analyzed in the following sections.

NEWLY GENERATED TRIPS (ITEM 4)

As it relates to the issue of new trips generated from existing land uses, an example of a new trip would be someone who currently telecommutes deciding that, since the road improvements have removed congestion, they will now drive to work. However, beyond the improved capacity that would be created by the subject road improvements, the capacity on the balance of the road network, including the I-15 and SR 78 freeways, which provide connections to Deer Springs Road and Twin Oaks Valley Road, would remain unchanged for the foreseeable future, and certainly in the short-term.

The I-15 and SR 78 freeways serve as the regional transportation backbone for the surrounding area. These freeways are forecasted to remain congested for the foreseeable future, primarily as a result of inter-subregional and inter-regional commuting to and from job centers along the Highway 78 Corridor. In short, the Corridor and the cities that reside within it are experiencing a growing imbalance between job creation and housing creation, which is leading to a substantial portion of the jobs commuting to the Corridor from outside the Corridor. Since the subject road improvements are only approximately 3.0 miles long, and the connecting roads are congested and will remain congested, it is unlikely that the subject road improvements will result in additional (new) trips from existing land uses.

The MarketPointe Realty Advisors Market Analysis ("Market Analysis", Newland Sierra Draft EIR, Additional Items) provides a quantitative assessment of this jobs/housing imbalance in what the report defined as the Highway 78 Corridor Competitive Market Area (Highway 78 Corridor CMA), an area that includes the Cities of San Marcos, Vista, and Escondido. This CMA is a subset of the larger Highway 78 Corridor employment area, which supports over 280,000 jobs within the Cities of Escondido, San Marcos, Vista, Carlsbad, and Oceanside (refer to the "Innovate 78 Regional Profile" Report, Appendix JJ-13 to the Final EIR). The MarketPointe Report found that 63% of the jobs in this CMA commute in from outside the CMA, with more than 1/4th (26%) of the total jobs in this CMA commuting in from outside of San Diego County (from Riverside, Orange, and Los Angeles Counties).

The MarketPointe Report concludes that these inter-subregional and inter-regional commuter trips are the result of a significant housing deficit in and around the Highway 78 Corridor and are the primary source of congestion on the I-15 and SR 78 freeways providing access to the Highway 78 Corridor. Both

of these freeways currently are operating at deficient to failing levels of service during the morning and evening peak hours, including for extended periods around these peak hours, and are currently carrying between 120,000 to 240,000 daily trips along the most congested segments within the vicinity of the Newland Sierra Project. Housing growth in Riverside County, which is 30+ miles away from the Highway 78 Corridor, is a significant source of the housing available to those jobs commuting into the Corridor, and those commuter trips impact the longest stretches of these two freeways resulting in substantially higher VMT per capita compared to growth either within the subregion or the San Diego region.

This freeway congestion serves as a significant limitation on the potential for existing land uses to generate entirely new trips on the subject road improvements for the foreseeable future. Therefore, the subject road improvements are not expected to result in a significant net increase in trips from existing land uses in the short-term. Over the long-term, absent substantial capacity enhancing improvements to the freeway system beyond those improvements to simply accommodate the forecasted growth, in conjunction with a substantial increase in new housing construction in and around the Highway 78 Corridor to address the jobs/housing imbalance, the freeway congestion is reasonably expected to remain the same. Therefore, the subject road improvements are not expected to result in entirely new trips generated from existing land uses for the foreseeable future.

UNPLANNED LAND USE CHANGES (ITEM 5)

As to the potential for the subject road improvements to facilitate unplanned land use changes (new unplanned development) along the corridor of improvements (Deer Springs Road and Twin Oaks Valley Road) or in the surrounding area, there are several physical and related constraints that would limit such an outcome:

> (1) The land along both sides of Deer Springs Road is physically constrained (refer to ROW Exhibits—Deer Springs Road and ROW Exhibits—Twin Oaks Valley Road included as Additional Items to the Draft EIR). Portions of the south side of the road are constrained by Deer Springs Creek. The north side of the road has a highly fractured ownership pattern comprised of a mix of vacant land and large lot estate housing covering a developable area of less than 100 acres, which is backed up against a steep ridgeline. As Deer Springs Road turns to the south and traverses across the City of San Marcos municipal boundary, the land on either side of the road is primarily agricultural land today with some of the land already slated for development (e.g., the TERI Campus of Life Project at 555 Deer Springs Road). The agricultural land in the unincorporated area along Deer Springs Road is owned by Mountain View Nursery and Golden Door, LLC. Approaching the City of San Marcos municipal boundary and within the City limits, the Twin Oaks House Weddings facility and Deer Springs Equestrian business are located on the west side of the

road with County and City-owned land on the east side, including the City of San Marcos' Walnut Grove Park. Thus, while certain areas along Deer Springs Road are less constrained than other areas, due to the fractured ownership and relatively limited total amount of developable land, the widening of Deer Springs Road to four lanes is not expected to support significant unplanned land use changes along the road itself.

East of Deer Springs Road (on the east side of I-15) is the Community of Hidden Meadows, which is served by Mountain Meadow Road. Mountain Meadow Road is already widened to four lanes and the Community of Hidden Meadows is already significantly developed or, in the case of the Community's outlying areas, the ownership pattern is highly fractured and/or already conserved as open space. Aside from the Boulder Oaks Golf Club, which is already developed with significant amounts of single family housing, there is no single large contiguous block of ownership to support a large development project. And, more broadly, again due to the fractured ownership, any major unplanned development would be significantly constrained by this fact.

Along the east side of I-15, the neighborhoods/communities of Lawrence Welk, Champagne Village, and Jesmond Dene are located along Champagne Boulevard and N. Centre City Parkway, which both connect to Mountain Meadow Road. These areas are surrounded by steep slopes and/or dedicated open space and are either already developed or comprised of highly fractured ownership.

As it pertains to the 0.7-mile-long segment of Twin Oaks Valley Road, the subject road improvements would be constructed entirely within the City of San Marcos municipal boundaries and the land along both sides of the road is predominantly developed today with a mix of commercial and residential development. The ownership pattern is also highly fractured.

Buena Creek Road connects to Twin Oaks Valley Road on the east and S. Santa Fe Avenue on the west. This area is comprised of a mixture of residential development, agricultural uses, and vacant land. The ownership pattern is again highly fractured with a limited amount of single contiguous blocks of ownership large enough to support a major development project. Buena Creek Road is also a two-lane road that carries significant traffic volumes during the morning and evening peak periods today. Widening and improving the road to accommodate these volumes would serve as a substantial constraint to any development along the road.

Thus, due to significant physical constraints and the fractured ownership pattern in the areas along Deer Springs Road and the surrounding area, the subject road improvements are not likely

to facilitate, or lead to, substantial unplanned development. As it relates to Twin Oaks Valley Road, development along this corridor also is constrained by the fractured ownership, although less so than development along or related to Deer Springs Road. Furthermore, any new housing growth that might occur along Twin Oaks Valley Road could potentially benefit efforts to reduce VMT by placing housing closer to job centers along the Highway 78 Corridor.

(2) When speculating on the potential for future unplanned growth to occur as a result of road capacity enhancing improvements, the MarketPointe Report found that, of 12,189 proposed housing units in the Highway 78 Corridor CMA, only 1,521 housing units (12.5%) have either obtained final approval or are part of a final map. Of these, 8,312 proposed housing units (68%) have no approvals. Some of these unapproved units may never get approved and built and all of them will likely take several years to go through the planning and environmental review process. Therefore, absent a significant change to the way the state's planning and development laws are applied to proposed housing projects, these laws will continue to serve as a de facto constraint to both planned and unplanned development.

(3) Finally, as addressed in the Newland Sierra VMT Analysis to Respond to SB 743 (Appendix R2), the subject road improvements are consistent with the County's General Plan Mobility Element, the City of San Marcos General Plan Mobility Element, the Regional Arterial System (RAS), and the 2015 RTP/SCS. Since 1967, Deer Springs Road has been identified as a four-lane Major Road in the County's Mobility Element, previous right-of way dedications have supported this four-lane road classification, and the road has been part of the RAS since 1997. Thus, both from the standpoint of supporting planned local development and regional growth, the subject road improvements are consistent with long-standing transportation planning for the area.

SUMMARY

In summary, from the standpoint of effects related to trip length, travel mode, and routing, the short-term and long-term travel demand model results demonstrate that the subject road capacity enhancing improvements would reduce regional VMT (refer to Table 1 above). From the standpoint of effects related to newly generated trips from existing developed areas and long-term land uses changes, substantial constraints exist (and will likely exist for the foreseeable future) that would substantially limit the potential for the subject road improvements to result in induced travel/induced VMT. Finally, as addressed previously, the subject road improvements are consistent with the County of San Diego and City of San Marcos Mobility Elements, as well as with long-standing transportation planning for the area.

CONCLUSIONS

The results of the analysis presented in the *Newland Sierra VMT Analysis to Respond to SB* 743 (Appendix R2 of the Draft EIR) used the elasticity-based formula to estimate the range of short-term and long-term induced VMT impacts attributable to the subject road improvements proposed as mitigation for the Newland Sierra Project's traffic impacts. However, use of the elasticity-based formula assumes that all road capacity enhancing projects *increase* VMT (i.e., result in induced VMT). As a result, this formula ignores certain VMT reducing benefits of road capacity enhancing improvements that have the potential to reduce trip lengths for existing and forecasted future traffic, and road capacity enhancing improvements that also include bicycle lanes, multi-use pathways, or other multimodal improvements that are likewise shown to reduce VMT. Here, the subject road improvements would facilitate alternative travel patterns for southbound travelers on I-15 destined for westbound SR-78, *and* incorporate new eight-foot-wide Class II bike lanes and a ten-foot-wide multi-use pathway along Deer Springs Road and Twin Oaks Valley Road, a Class I bike path along Twin Oaks Valley Road, and multi-modal and parking capacity improvements to the Park-and-Ride facility at the I-15/Deer Springs Road interchange. As such, it is likely that the Appendix R2 of the Final EIR results overstate the potential for the project's recommended mitigation to induce VMT.

For comparison purposes, and in accordance with the OPR Technical Advisory, a regional travel demand model (SANDAG Series 12 Traffic Forecast) was used to quantify the effect the subject road improvements would have on regional VMT and the results (as shown in Table 1 above) demonstrate that the subject road improvements would reduce regional VMT both in the short-term and the long-term. Additionally, as explained herein, although the travel demand model results only measure three of the five factors or items relating to induced VMT, the factors not captured by the travel demand model (newly generated trips from existing developed areas, and unplanned land use changes) are qualitatively shown to be unlikely to induce VMT because of the relatively short length (approximately 3.0 miles) of the subject road improvements, which would not remedy the existing congested freeway system, and the physical constraints/fractured ownership patterns present in the surrounding area.

Therefore, notwithstanding the results of the elasticity-based methodology for quantifying potential short-term and long-term induced VMT effects associated with road capacity enhancing improvements, based on the specific multi-modal features that would be constructed as part of the subject road improvements, in conjunction with the other constraining factors that would limit induced VMT effects, the subject road improvements are not expected to result in substantial induced VMT. In fact, in light of the travel demand model results presented in Table 1 above, it is reasonable to expect that the subject road improvements, instead, could result in a decrease in regional VMT.