Appendix J Transportation Technical Report

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Mr. Dave Slater
Signal Hill Petroleum, Inc.
2633 Cherry Avenue
Signal Hill, California 90755

Subject: **Transportation and Vehicle Miles Travelled (VMT) Memorandum – Signal Hill Petroleum, Inc. (SHP), Conditional Use Permit (CUP 97-03) Extension Project**

Dear Mr. Slater,

This technical memorandum was prepared by Sespe Consulting, Inc. ("Sespe") on behalf of Signal Hill Petroleum, Inc. (SHP) to identify and analyze potential transportation and vehicle miles travelled (VMT) impacts of the proposed continuance of the City of Signal Hill ("City") Conditional Use Permit 97-03 ("CUP 97-03") for twenty (20) years beyond its current term which ends in 2023 (the "Project"). Specifically, this memorandum discusses the Project's effects in response to California Environmental Quality Act (CEQA) Guidelines Appendix G for transportation, as well as the applicable requirements enacted with Senate Bill 743 (SB 743). SHP currently operates seven (7) existing oil and gas facilities (referred to herein as "CUP Sites") under a consolidated permit (CUP 97-03) (see Figure 1). CUP 97-03 was first approved by the City in 1998, and SHP has operated the CUP Sites for the current 23-year aggregate term in compliance with the existing CUP conditions of approval, the City Municipal Code, and regulatory requirements of other regulatory agencies as applicable. Additionally, the seven sites that comprise CUP 97-03 have undergone previous CEQA reviews, resulting in two Mitigated Negative Declarations (MNDs) certified by the City in 1997 and 2002 respectively, and a Categorical Exemption (CatEx) in 2012.

SHP is now seeking the continuance of their existing oil and gas operations covered under CUP 97-03 for twenty (20) years beyond its current term which ends in 2023. SHP is also proposing to construct and operate redundancy and efficiency modifications to the existing natural gas system located at CUP Site #2. Lastly, although SHP would primarily continue drilling/redrilling operations within the existing well cellars at each CUP Site, at times a new ancillary well cellar may need to be created. Other than the proposed modifications to the existing gas system at CUP Site #2 and potential construction of new well cellars at the remaining CUP Sites, the Project would include no substantial changes to SHP's existing operations, previously evaluated under the 1997, 2002 and 2012 CEQA reviews and City approvals. SHP would continue to operate the existing oil and gas facilities in the same manner and with the same employees, equipment and on-road vehicles as they have historically, and SHP is not seeking any amendments or modifications to the CUP that would expand the existing activities authorized under the CUP's existing terms.

In 2013, the California legislature enacted Senate Bill (SB) 743, which required, among other things, that the State of California Governor's Office of Planning and Research (OPR) adopt new guidelines for assessing transportation impacts, specifically that traffic congestion would no longer be considered in assessing a significant impact under CEQA. The purpose was to better align the CEQA transportation analyses with the state's goals of reducing greenhouse gas (GHG) emissions and traffic-related air pollution, as well as promoting multimodal transportation networks and a diversity of land uses. These new regulations represent a significant shift in analyzing transportation impacts under CEQA, and as a result, by July 1, 2020, all CEQA lead agencies have been required to analyze a project's transportation impacts using vehicle miles travelled (VMT) metric. The Governor's Office of Planning and Research (OPR's) Technical Advisory (OPR, 2018) document provides guidance for evaluating this new transportation impact method. This shift in CEQA transportation metrics promotes outcomes that reduce reliance on automobile travel, and thus aligns with state goals for reducing GHG emissions and traffic-related air pollution, investing in multimodal transportation networks, encouraging higher density in-fill development, and providing clean, efficient access to destinations. The California Natural Resources Agency certified and adopted the CEQA Guidelines update package including the guidelines for implementing SB 743. The new CEQA Guidelines Section 15064.3 – Determining the Significance of Transportation Impacts, generally requires that VMT-based metrics be used to evaluate project-specific transportation impacts.

As such, in accordance with CEQA Guidelines Section 15064.3, this memorandum quantifies the potential transportation and VMT impacts associated with the proposed Project. Currently, the City of Signal Hill, which is the CEQA lead agency for this Project, has yet to publish policies or threshold specific to the new CEQA Guidelines Section 15064.3. Therefore, the Project's potential transportation and VMT impacts are presented and quantified utilizing the OPR's Technical Advisory methods, as well as applicable CEQA Appendix G Checklist criteria.

In summary, the existing oil and gas operations under CUP 97-03, including the continued drilling of new wells and redrilling/reworking of existing wells, would conservatively continue to generate an average of 60 daily vehicle trips per day (equivalent to 30 roundtrips or "tours", and an estimated 173 VMTs per day). To analyze potential construction traffic associated with the proposed Project, new vehicle trips associated with simultaneous construction of the proposed gas system modifications at CUP Site #2 and a new well cellar at another CUP Site were analyzed. Note that on a given operational day, only one well cellar would be constructed at a time (i.e., simultaneous construction of multiple well cellars at multiple CUP Sites would not occur in a single day). To facilitate these proposed Project construction activities, conservatively it was estimated the equivalent of 36 additional daily vehicle trips (28 vehicle trips associated with the gas system, and 8 vehicle trips associated with well cellar construction), which is equivalent to 18 additional roundtrips or "tours" and an estimate 94 VMTs per day, could result. Note that these new Project trips are associated with temporary activities (i.e., construction of the gas system modifications and a single well cellar). Once construction of the natural gas processing system (approximately 6 months) and/or well cellar (can be constructed in a single day) is complete, existing onsite employees would operate the equipment (i.e., no permanent additional vehicle trips would be required). As such, other than the temporary additional vehicle trips generated during construction of the gas plant modifications at CUP Site #2 and/or well cellar, the Project will not permanently generate any new daily vehicle trips or additional VMTs as compared to existing conditions.

The estimated maximum equivalent of 36 new daily vehicle trips due to the simultaneously construction of the gas system modifications and a new well cellar are less than the "Small Projects Generating less than 110 Daily Trips" presented in OPR's Technical Advisory, and therefore the Project would have a less than significant impacts with respect to CEQA transportation criteria. Note the use of the 110 or more net increase in daily vehicle trips screening threshold is also consistent with Los Angeles County's *Transportation Impact Analysis Guidelines* (Los Angeles County, 2020). Refer to the vehicle activity data summaries in Attachment 2 for additional detail.

PROJECT SUMMARY

Existing Operations

The Project site(s) (i.e., CUP Sites #1 through #7) are situated throughout the City of Signal Hill, in Los Angeles County, California (Figures 1 and 2). The seven CUP Sites are located within developed urban areas, adjacent to lands designated for industrial, commercial and residential uses. Existing CUP Site operations typically include water-injection wells and producing wells, which serve as gathering locations for oil, gas and water production, distribution sites for water injection, and control centers for the electrical system. Additionally, CUP Sites #2, #5 and #6 have and would continue to serve as the centralized processing and storage facilities for oil production and water-injection operations. All production (oil, water and gas) from the CUP Site wells is received at these central processing facilities where the raw materials are separated, treated, and shipped to various purchasers.

As discussed above, the Project is primarily the continuance of SHP's existing consolidated oil and gas operations at the seven CUP Sites covered under CUP 97-03 for the proposed 20-year term. SHP would continue to operate the existing oil and gas facilities in the same manner and with the same equipment/personnel as they have historically, consistent with current and historical norms. The existing facility boundaries would not change or expand, and all operations (existing and proposed) would continue to occur within the existing permitted CUP footprint(s). Specifically, SHP would continue the following general operations at their seven CUP Sites:

- Well servicing and maintenance;
- Drilling and redrilling operations;
- Oil processing, storage and transfer;
- Natural gas and natural gas liquids processing, storage and transfer;
- Produced water separation, and injection facilities; and
- Electrical production from a natural gas turbine powered generator.

The Project would also not modify the existing production levels or methods, hours of operation, materials to be extracted, processed and sold, the number or type of onsite equipment (mobile equipment, drilling rigs, etc.), or the number of onsite employees (12 to 14 existing employees per day would continue to work at the CUP Sites). As such, these existing operations are the "baseline" against which the Project's potential transportation impacts have been analyzed to determine whether the Project will result in a potentially significant environmental impact under CEQA.

Vehicular access and parking would continue to be provided by existing access points and designated parking areas at each of the CUP Sites. On a typical operating day, employee and contractor vehicles (i.e.,

automobiles, light- and heavy-duty trucks) travel between the CUP Sites to conduct routine maintenance, safety inspections, well servicing/testing, and other ancillary activities to ensure the extraction, processing and transmission equipment is operating properly. Specifically, a total of approximately 12 to 14 employees per day would continue to work at the seven CUP Sites during the course of normal operations to conduct operations surveillance, plant operations, surface equipment maintenance/repairs, downhole well servicing/repairs, and miscellaneous maintenance/site visitors. Miscellaneous heavy-duty trucks would also continue to travel to, from, and between the CUP Sites as needed each day. See Table 1, which summarizes existing the vehicle activity under CUP 97-03, and Attachment 2 for additional detail.

Drilling/Redrilling

In accordance with CUP 97-03, as well as applicable City and CalGEM requirements, SHP would continue to drill new wells and redrill existing wells (both production and injection wells) at the seven CUP Sites on an as needed basis. Although cyclical fluctuations are a natural aspect of the oil and gas industry, the Project is a continuation of existing operations, and as such the level of future drilling for the proposed 20-year term of the Project is forecasted to be consistent with historical operations. Specifically, wells would continue to be drilled/redrilled during the life of the CUP to replace lost production capacity, and therefore the total quantity of oil, natural gas, and water produced by extraction operations would not change or increase above existing levels. Continue drilling/redrilling would also not require the installation of additional ancillary equipment, as SHP's existing storage, transmission, and processing facilities located within the seven CUP sites have sufficient capacity to continue to serve extraction operations throughout the proposed 20-year life of the CUP.

Consistent with existing operations, during intermittent drilling/redrilling operations an additional 4 to 8 employees/contractors per day would work at the specific CUP Site where the activities are occurring. Additionally, larger heavy-duty trucks would also be utilized to transport the drill rigs/ancillary equipment as needed. Once a well is installed/redrilled and placed into operation, there would be no need for additional onsite employees or vehicle activity, as the well would be connected to SHP's existing transmission and storage systems. No change from these historical drilling/redrilling activities is proposed, and therefore the daily number of onsite employees/contractors and associated vehicle trips (see Table 1) would also not change or increase as a result of the Project.

Existing Traffic Pattern

Currently SHP vehicles move between the CUP Sites via the following public roadways (listed from north to south): E. Sprint Street, Orange Avenue, E. 29th Street, Walnut Avenue, E. Willow Street, Junipero Avenue, Combellack Drive, Temple Avenue/Obispo Avenue, and E. Grant Street (see Figure 2). Note that the travel distances from SHP's main office (located at 2633 Cherry Avenue) to each CUP Site, via the roadways summarized above, and back were mapped using Google Earth™ to determine the average round trip distance and associated VMTs. Ingress/egress to the CUP Sites would continue to be provided by existing perimeter access gates. Each access point is gated and locked, and signs have been placed at the access points and on the perimeter fencing as necessary to identify the operations and warn the public that no public access/trespassing is allowed. No changes to the existing CUP Site access points, travel distances, or existing traffic patterns on local roadways are proposed as part of the Project.

Proposed Operations/Activities

As discussed above, "new" Project vehicle trips would primarily be generated during construction of the proposed gas system modifications at CUP Site #2; however, these vehicle trips would be temporary, and would cease once the equipment is installed and placed into operation. Additionally, although SHP would primarily continue drilling/redrilling operations within the existing well cellars at each CUP Site, at times a new ancillary well cellar may need to be created, which would also result in additional temporary vehicle trips. As discussed in greater detail below, construction of the gas modification system and assumed installation of a new ancillary well cellar would together generate an estimated maximum equivalent of 36 additional automobile trips per day (equivalent to 18 roundtrips or "tours", and an estimate 94 VMTs per day). Refer to Table 2, which summarizes the estimate new Project vehicle activity, and the summary tables in Attachment 2 for additional detail.

Gas System Modification – Construction Summary

SHP is proposing to modify its current natural gas processing system at CUP Site #2 by adding a back-up low temperature separation unit ("LTS") and a back-up membrane unit for the removal of inert gas. SHP will also connect to a new gas sales meter and pipeline provided by the SoCal Gas Company ("SCG"). The booster compressor and CEB burner will be installed in Phase 1 following approval of the Project. The LTS and membrane units will be installed in Phase 2, estimated to occur sometime in 2023. The construction process and timing will be virtually identical for the two phases, with each spanning approximately 12 weeks. Construction activities will be restricted to Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m., consistent with Section 9.16.050 of the City's Municipal Code (City of Signal Hill, 2021).

During temporary construction activities, it is estimated that up to six (6) additional contractor light-duty vehicles would travel to and from CUP Site #2 each day. Additionally, one-time deliveries of ready-mix concrete (RMC), and equipment/materials would require the use of larger heavy-duty trucks. It's estimated that a maximum of four (4) additional heavy-duty trucks (flatbed equipment deliveries, and RMC trucks) would travel to CUP Site #2 on a given construction day.

Well Cellar Construction

Although SHP would primarily continue drilling/redrilling operations within the existing well cellars at each CUP Site, consistent with past operations, at times a new ancillary well cellar may need to be created. As with SHP's current protocols, new well cellars are created by excavating a shallow hole (approximately 6-feet wide, 6-feet long, and 5-feet deep) using a backhoe type excavator (new well cellars can be excavated within a single day). Once excavation is complete, a pre-cast concrete box or a large diameter galvanized round steel pipe is placed into the excavation hole to secure the new well cellar.

Project well cellar construction would occur during daytime hours only (7:00 a.m. and 6:00 p.m.), Monday through Friday, consistent with Section 9.16.050 of the City's Municipal Code (City of Signal Hill, 2021). At most, well cellar construction would require an estimated two (2) additional onsite employees/contractors (equivalent to four [4] additional daily vehicle trips), and one (1) additional heavy-duty truck (needed to transport equipment).

PROJECT TRIP GENERATION

As discussed above, the proposed Project would not result in any changes or increases to the existing facility throughputs or increases in total oil and gas production above historical levels, nor change the number of onsite employees/contractors or hours of operation. Other than temporary vehicle trips associated with construction of the proposed gas system modifications at CUP Site #2 and new well cellars, the Project would not generate any additional vehicle trips, traffic volumes, or VMTs on a permanent daily basis. Construction of new well cellars at the CUP Sites would be infrequent, and would most likely not occur on the same day that construction of the gas system modification at CUP Site #2 is occurring. Nonetheless, conservatively it is assumed that both Project activities would occur simultaneously on the same day, and therefore vehicle activity associated with well cellar construction is also included in this VMT analysis.

Table 1 below summarizes the average daily vehicle trips and estimated travel distances/VMTs associate with SHP's existing/baseline operations under CUP 97-03, while Table 2 summarizes the same data estimated for the proposed/new Project activities (i.e., CUP Site #2 gas system modifications and new well cellar construction). Note the data presented below is generally representative of the complete roundtrips, or "tours", that a single vehicle would make on a given operational day. Specifically, the average roundtrip distances (miles) represent the full distance that each vehicle would travel in a given day, moving from SHP's main office and between the individual CUP Sites. These travel distances are then totaled to determine the estimated daily VMTs. Note that because the number/type of onsite employees would not change as a result of the Project, existing travel distances from employee's homes to SHP's office were not included. Refer to the vehicle activity summary tables in Attachment 2 for additional detail and a summary of applicable assumptions.

Lastly, it should also be noted that many of the trips presented below represent light- and heavy-duty truck trips which are technically exempt from SB 743 requirements; however, truck activity is presented below for informational purposes and for completeness, and conservatively accounted for within the Project VMT analysis (converted to automobile trips using the Federal Highway Administration's [FHWA's] appropriate passenger car equivalence [PCE] factor). Note this data set also corresponds with the vehicle activity analyzed in the air quality and greenhouse gas impact analysis technical report to estimate baseline and proposed Project emissions from mobile on-road sources.

Table 1 –Existing/Baseline Vehicle Trips & VMT Summary (Activities Would Continue at Same Intensity/Trips)

Existing Operations				Daily Vehicle Activity				VMT Summary	
Activity	**Frequency**	**Vehicle Type**	**PCE Factor [E]**	**Roundtrips (inbound + outbound)**	**One-Way Trips**	**PCE Equivalent Roundtrips**	**PCE Equivalent One-Way Trips**	**Avg. Roundtrip Distance (miles)**	**Daily VMT**
Operations Surveillance [A, B]	Daily	Light-Duty	1	2	4	2	4	7	14
Plant Operations [A, B]	Daily	Light-Duty	1	2	4	2	4	5	10
Surface Equipment Maintenance & Repairs [A]	Daily	Light-Duty	1	6	12	6	12	7	42
Downhole Well Servicing/Repairs [A]	Daily	Light-Duty	1	2	4	2	4	6.5	13
Misc. Maintenance & Site Visitors [A]	Daily	Light-Duty	1	2	4	2	4	7	14
Drilling/Redrilling Operations - Employee/Contractor [C]	Intermittently	Light-Duty	1	8	16	8	16	5	40
General Heavy-Duty Truck Activity [D]	Intermittently	Heavy-Duty	2	4	8	8	16	5	40
See footnotes on the following page for additional detail.				**Existing Daily Vehicle Trips:**		**30**	**60**	**Existing Daily VMT:**	**173**

Table 2 –Proposed Project Vehicle Trips & VMT Summary

Proposed Construction				Daily Vehicle Activity				VMT Summary	
Activity	**Frequency**	**Vehicle Type**	**PCE Factor [E]**	**Roundtrips (inbound + outbound)**	**One-Way Trips**	**PCE Equivalent Roundtrips**	**PCE Equivalent One-Way Trips**	**Avg. Roundtrip Distance (miles)**	**Daily VMT**
Gas System Modification - Contractor/Gear Trucks	Daily	Light-Duty	1	6	12	6	12	3	18
Gas System Modification - Heavy-Duty Trucks (Equipment/Deliveries)	Daily	Heavy-Duty	2	2	4	4	8	5	20
Gas System Modification - Ready-Mix Concrete (RMC) Trucks	Daily	Heavy-Duty	2	2	4	4	8	10	40
Well Cellar Construction - Employee/Contractor	Intermittently	Light-Duty	1	2	4	2	4	3	6
Well Cellar Construction - Equipment Delivery	Intermittently	Heavy-Duty	2	1	2	2	4	5	10
See footnotes on the following page for additional detail.				**Proposed Daily Vehicle Trips:**		**18**	**36**	**Proposed Daily VMT:**	**94**

Footnotes for Table 1 and Table 2:

A. A total of twelve (12) to fourteen (14) employees per day currently work at and travel between the seven (7) CUP Sites during the course of normal operations. These existing employees and associated vehicle trips are collectively represented by the existing daily, light-duty vehicle activity (14 roundtrips total) shown above.

B. Represents two (2) well tester vehicles moving between the seven (7) CUP Sites each day (total roundtrip distance from start to finish is approx. 7 miles).

C. Represents two (2) plant operators/vehicles working in two (2), 12-hour shifts at the plant facilities (average roundtrip distance from SHP office to/from plant facilities [primarily CUP Site #2] is approx. 5 miles).

D. Drilling/redrilling activity would not occur on a typical operational day. However, on intermittent days when drilling/redrilling were occurring, eight (8) additional employee/contractor vehicles would travel from SHP's office to the farthest CUP Site (i.e., roundtrip distance to CUP Sites #6 and #7 is approx. 5 miles) to conduct these operations.

E. Although heavy-duty truck activity would be infrequent, it's assumed four (4) heavy-duty trucks would travel to/from the CUP Sites on a given day. These trips represent tanker trucks, larger material deliveries, equipment/drill rig transports, etc.

F. Passenger Car Equivalence (PCE) Factor: Federal Highway Administration (FHWA) guidance (https://www.fhwa.dot.gov/reports/tswstudy/Vol3-Chapter9.pdf) states "*On level terrain and in uncongested conditions conventional trucks may be equivalent to about **two** passenger cars in terms of their impact on traffic flow*".

G. Construction of the gas system modifications would be temporary (completed in approx. 6 months or less), and vehicle trips would occur Monday-Friday only. Although vehicle activity would be intermittent, conservatively it's assumed all penitential contractor light-duty and heavy-duty/RMC truck trips would occur in a single construction day. Once the system is fully installed, existing SHP employees/contractors would continue to conduct operations (i.e., there would be no permanent increase in vehicle trips to/from CUP Site #2 as a result of the gas system modifications).

H. Although well cellar construction would not occur on a typical operational day, conservatively its assumed one (1) SHP employee and one (1) equipment delivery roundtrip using a flatbed truck would occur.

As summarized above, conservatively assuming temporary gas system construction vehicle trips and vehicle trips associated with well cellar construction all occurred within a single day, the Project would generate an estimated maximum equivalent of 36 additional daily vehicle trips (equivalent to 18 roundtrips or "tours", and an estimate 94 VMTs per day) due to employees, contractors, and heavy-duty work trucks travelling to and from the CUP Sites.

In lieu of specific guidance and transportation thresholds provided by the City of Signal Hill, OPR's Technical Advisory (OPR, 2018) and Los Angeles County's Transportation Impact Analysis Guidelines documents are utilized. The new Project vehicle trips are well below the "Small Projects Generating less than 110 Daily Trips" threshold presented in OPR's and Los Angeles County's guidance documents, and would therefore be "screened out" as having less than significant transportation impacts with respect to CEQA Appendix G Environmental Checklist for Transportation – Criteria (b): *Would the proposed Project conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b)?* Specifically, both OPR and Los Angeles County state that "Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less than significant vehicle miles travelled (VMT) impact." (OPR, 2018) / (Los Angeles County, 2020). See discussions below for additional detail.

Truck Activity

As discussed above, in addition to SHP's employees and contractors operating light-duty trucks (or potentially medium-duty fleet trucks), larger heavy-duty trucks would also continue to be utilized as needed to deliver materials and equipment to the CUP Sites, including during temporary construction activities at CUP Site #2 and to facilitate as-needed well cellar construction; however, OPR's guidance and Section 15064.3 of the CEQA Guidelines clearly states that "…'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Here, the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." (OPR, 2018). For this reason, generally heavy-duty trucks, or the movement of goods associated with industrial projects, should be excluded from a project's VMT evaluation. Nonetheless, conservatively this memorandum has quantified the Project's heavy-duty truck activity and includes this data within the daily VMT analysis.

As summarized in Table 2, heavy-duty trucks would be required to transport materials and equipment to CUP Site #2 to facilitate construction of the proposed gas system modifications. Over the estimated 6-month construction period, flat-bed trucks would be utilized on an as-needed basis to deliver processing equipment and piping. Additionally, ready-mix concrete (RMC) trucks would also be required to form the concrete foundations. Collectively, on a given day of construction it's estimated that a total maximum of eight (8) additional truck trips could result.

Consistent with existing operations, heavy-duty trucks would also be required to facilitate construction of new well cellars at the given CUP Sites. Specifically, a larger flat-bed truck would be used to transport the backhoe to the specific CUP Site where the new well cellar is being constructed. Note that well cellars can be constructed in a single day, and therefore this activity is estimated to result in a maximum number of two (2) additional truck trips in a given operational day. Additionally, SHP has indicated that no more than twenty (20) new well cellars would be constructed at the CUP Sites throughout the proposed 20-year life of the Project.

Assuming all heavy-duty truck trips occur on a single day (i.e., 10 total truck trips), and using the appropriate Federal Highway Administration (FHWA) passenger car equivalence (PCE) factor (i.e., estimate 2 automobile trips per 1 truck trip), it's estimated new Project heavy-duty truck activity would result in the equivalence of 36 additional automobile trips per day. Note that this is a conservative overestimation, as this assumes all heavy-duty truck trips would occur on the same day. In reality, truck trips associated with temporary construction activities at CUP Site #2 and well cellar construction would be temporary and infrequent, and would likely not occur simultaneously on the same day.

APPLICABLE REGULATIONS

CEQA

As discussed above, the California legislature enacted SB 743 in 2013, which required, among other things, that the OPR adopt the new CEQA Guidelines Section 15064.3 – Determining the Significance of Transportation Impacts for assessing transportation impacts. OPR has replaced roadway capacity and vehicle delay measures, often displayed as Level of Service (LOS), with VMT, which estimates the total distance people drive by vehicle. Additionally, the Natural Resources Agency adopted revisions to the CEQA Guidelines, which included updates to the Appendix G, Environmental Checklist Form. The revisions were approved by the Office of Administrative Law and filed with the Secretary of State on December 28, 2018. This transportation memorandum includes the new CEQA Appendix G questions for the transportation impact area.

City of Signal Hill

The City of Signal Hill has not yet adopted specific VMT guidance or significance threshold for evaluating transportation impacts in CEQA Guidelines Section 15064.3 in response to SB 743.

OPR

OPR developed interim guidance in December 2018 entitled, "*Technical Advisory on Evaluating Transportation Impacts in CEQA*" (Technical Advisory) for automobile VMT (i.e., automobiles and light-duty vehicles). The OPR Technical Advisory provides non-binding technical advice, and is not a formal administrative regulation, like the CEQA Guidelines. However, it does provide a reasonable framework for lead agencies as they implement the updated transportation CEQA Guidelines. This VMT analysis applies the methodologies and screening thresholds provided in this OPR Technical Advisory document (OPR, 2018). Note that OPR's guidance summarized also corresponds with the methods and threshold outlined within the *Transportation Impact Analysis Guidelines* published by Los Angeles County in July 2020 (Los Angeles County, 2020).

County of Los Angeles

The County of Los Angeles has also adopted various transportation analysis methods and project CEQA thresholds through their Transportation Impact Analysis Guidelines document (Los Angeles County, 2020). Many of the Los Angeles County methods and criteria, such as the use of the "*development project(s) generating a net increase of 110 or more daily vehicle trips*", are identical to those published by OPR within their Technical Advisory document. In addition to the trip count screening threshold(s), the Transportation Impact Analysis Guidelines also provides baseline VMT per capita data which can also be utilized to determine a project's potential transportation impacts under CEQA. Specifically, Los Angeles County has

adopted a threshold of 16.8% below the existing VMT of the region (either North County or South County). Specifically for the South County region, which encompasses the City of Signal Hill and the CUP Sites, the existing baseline VMT per capita is an average of 18.4 miles per employee per day. Therefore, by applying the 16.8% below baseline metric noted above, an appropriate VMT threshold for the Project would be approximately 15.3 VMT's per employee per day. See discussion below and Attachment 2 for additional detail.

CEQA IMPACT ANALYSIS

CEQA Guidelines, Transportation – Appendix G Checklist Question (a): *Would the proposed Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

Based on the Project described above (see Table 2), the proposed Project would not create additional vehicle trips on roadways within the City of Signal Hill that could potentially conflict with a program, plan, ordinance or policy addressing the circulation system. Additionally, the Project would not change the manner in which vehicles access the existing CUP Sites onto adjacent public roadways, or require the construction of new access roads or alterations of existing roadways, or bicycle/pedestrian facilities. Existing ingress/egress access points would continue to sufficiently serve the CUP Sites throughout the proposed 20-year life of the Project. As a result, the Project would not impact any City program, plan, ordinance, or policy related to transit, roadway, bicycle, or pedestrian facilities, and impacts would be less than significant.

As discussed above, per SB 743 and OPR's subsequent guidance related to CEQA transportation evaluations, a project's Level of Service (LOS) effects related to roadway capacity, vehicle delays and traffic congestion are no longer considered under CEQA. LOS is a technical engineering non-CEQA criteria used to evaluate the delays at intersections and roadway segments and uses a grading system of LOS A through LOS F to describe the operational characteristics with LOS A indicating free flowing operations with little delay and LOS F indicating long delays and congestion. Typically, LOS D or better are considered accepted traffic operations.

The City of Signal Hill recently evaluated traffic operations and congestion impacts, in addition to VMT impacts, for its own General Plan – Housing Element update, which is currently underway. In its own traffic impact study for its Housing Element (Ganddini, 2021), the City of Signal Hill identified its most congested intersections and roadway segments and evaluated the LOS and congestion impacts from the future build-out of its Housing Element. This includes the north-south roadways of Orange Avenue, Walnut Avenue and Cherry Avenue and the east-west roadways of Spring Street, Willow Street and Burnett Street as well as the main signalized intersections in this grid roadway network. The transportation analysis conducted for the City's Housing Element update found that these existing operational deficiencies were especially pronounced during morning (a.m.) and evening (p.m.) weekday peak hours, specifically between the hours of 7:00 a.m. and 9:00 a.m. as well as 4:00 p.m. to 6:00 p.m., Monday through Friday. The CUP Sites are located generally within or just outside this area and existing CUP Site daily operational traffic (which would remain the same on a permanent basis with implementation of the Project) currently occurs on these major roadways.

While construction activities associated with the gas system modifications at CUP and well cellar construction would generate some additional vehicle activity on Signal Hill roadways, these effects would be temporary, and the total number of additional vehicles would be minimal compared to existing traffic volumes. Other than these temporary effects, the proposed Project would not generate any new permanent daily vehicle trips (i.e., continue to generate a small number of daily trips spread out throughout the day). As such, the Project would not change the LOS or impact the intersection or roadway segment operations within the City, and the continuation of the existing level of daily vehicle travel from SHP's existing CUP 97-03 operations would have a less than significant impact on roadway operations and LOS.

Nonetheless, to ensure the Project does not exacerbate existing congestion problems within the City, specifically as a result of larger and slower-moving heavy-duty trucks moving to a from the CUP Sites to facilitate gas system modification and/or well cellar construction, the following mitigation measure is proposed:

> ***Mitigation Measure TRANSPORTATION-1:*** *During temporary construction activities, specifically construction of the gas system modifications and/or well cellar construction, larger equipment and construction material deliveries shall be avoided during peak hours. Specifically, heavy-duty trucks shall abstain from travelling to and from the CUP Sites between the hours of 7:00 a.m. and 9:00 a.m., and 4:30 p.m. and 6:30 p.m., Monday through Friday*.

CEQA Guidelines, Transportation – Appendix G Checklist Question (b): *Would the proposed Project conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b)?*

To address the CEQA Guidelines, Transportation – Environmental Checklist Question (b), OPR's Technical Advisory was reviewed to screen-out the Project. The Technical Advisory suggests that lead agencies may screen out VMT impacts under CEQA based on project size, VMT generation characteristics, transit availability, and provision of affordable housing. Specifically, the following project types may be "screened out" as having less than significant transportation impacts per OPR's Technical Advisory[1] guidance:

- **Small Projects Generating Less than 110 Daily Trips:** OPR suggests a small project that would generate 110 trips per day or less generally may be assumed to cause a less than significant transportation impact and thus not warrant further VMT analysis. Los Angeles County also employs the same 100 trip per day screening threshold.
- **Redevelopment Projects with a Net Decrease in VMT**: Where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less than significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds developed by the jurisdiction should apply.
- **Projects in Low VMT Areas:** Residential and office (or other land use) projects that are located in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT and thus not warrant further VMT analysis.

[1] Governor's Office of Planning and Research. 2018, December. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

- **Projects in Transit Priority Areas (TPAs):** A TPA is an area within a half a mile of a major transit stop or a bus transit corridor with service intervals of no longer than 15 minutes during peak commute hours. A "major transit stop" means "a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods." As defined by Public Resources Code Section 21064.3. OPR suggests that a project in TPA should generally be presumed to have less than significant impacts, but the presumption might not be appropriate if the project:
    - Has a Floor Area Ratio (FAR) of less than 0.75.
    - Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking).
    - Is inconsistent with the applicable Sustainable Communities Strategy (SCS) (as determined by the lead agency, with input from the appropriate Metropolitan Planning Organization).
    - Replaces affordable residential units with a smaller number of moderate- or high-income residential units.
- **Local-Serving Retail Projects under 50,000 Square Feet:** Because new retail development typically redistributes shopping trips rather than creates new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts. By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less than significant transportation impact. Regional serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less than significant. OPR's Technical Advisory suggests that retail uses of less than 50,000 square feet might be considered local-serving.
- **Affordable Housing Projects:** OPR guidance indicates that adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. Further, "… low-wage workers in particular would be more likely to choose a residential location close to their workplace, if one is available." In areas where existing jobs-housing match is closer to optimal, low-income housing nevertheless generates less VMT than market rate housing, therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less than significant impact on VMT. Evidence supports a presumption of a less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations.

OPR also identified the following recommended VMT thresholds for projects that are not screened out under the criteria above:

- **Residential Projects**: A proposed residential project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. OPR states these thresholds can

be applied to either household (i.e., tour-based) VMT or home-based (i.e., trip based) VMT assessments.[2]

- **Office (Employment) Projects:** OPR recommends that office (employment) projects that would generate vehicle travel exceeding 15 percent below existing VMT per employee for the region may indicate a significant transportation impact. OPR uses the term "office"; however, the likely intent of the advisory is as employment.
- **Retail Projects**: Because new retail development typically redistributes shopping trips rather than creating new trips, OPR recommends a threshold based on the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) as the best way to analyze a retail project's transportation impacts. A net increase in total VMT may indicate a significant transportation impact.

Similar to OPR's guidance, Los Angeles County has also adopted similar VMT per capita screening thresholds within their Transportation Impact Analysis Guidelines document[3]. Specifically, a project could have a potentially significant VMT impact if or more of the following criteria:

- **Residential Projects:** The project's residential VMT per capita would not be 16.8% below the existing residential VMT per capita for the Baseline Area in which the project is located.
- **Office Projects:** The project's employment VMT per employee exceeding would not be 16.8% below the existing employment VMT per employee for the Baseline Area in which the project is located.
- **Regional Serving Retail Projects:** The project would result in a net increase in existing total VMT.
- **Land Use Plans:** The plan total VMT per service population (residents and employees) would not be 16.8% below the existing VMT per service population for the Baseline Area in which the plan is located.
- For other land use types, please contact Public Works to determine which of the above are an appropriate threshold of significance to be utilized.

The thresholds identified by OPR described above were derived from the California Air Resources Board (CARB) *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (CARB, 2019) on the VMT reductions needed over current conditions (2015-2018) to meet the State's 2030 and 2050 climate goals.[4] The CARB Report includes non-binding technical information on what level of statewide VMT reduction would promote achievement of statewide GHG emission reduction targets. CARB asserts that the currently adopted SCSs throughout the state "would achieve in aggregate, a nearly 18 percent reduction in statewide per capita on-road light-duty transportation-related GHG emissions relative to 2005 by 2035, if those SCSs were successfully implemented." However, in order to meet the state climate

[2] OPR states that lead agencies can evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included. In the analysis of each use, a project should take credit for internal capture. Alternatively, a lead agency may consider only a project's dominant use.

[3] Los Angeles County – Public Works. July 23, 2020, December. Transportation Impact Analysis Guidelines (https://pw.lacounty.gov/traffic/docs/Transportation-Impact-Analysis-Guidelines-July-2020-v1.1.pdf)

[4] California Air Resources Board (CARB). *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf).

goals, the full reduction needed is a 25 percent reduction in statewide per capita on-road light-duty transportation-related GHG emissions, however, CARB has "determined that those targets would be infeasible for metropolitan planning organizations (MPOs) to achieve with currently available resources." CARB concluded (using assumptions of a cleaner fuels and technologies scenario) that a 14.3 percent reduction in total daily VMT per capita below existing conditions and a 16.8 percent reduction in light-duty VMT per capita below existing conditions were needed to meet these goals. The CARB Report is based on modeling that incorporates cleaner technologies and fuels assumptions consistent with the 2017 Scoping Plan Update and the 2016 Mobile Source Strategy.

Thresholds for Impacts to Goods Movement

As discussed above, neither OPR's Technical Advisory nor CEQA Guidelines Section 15064.3(a) directly address how to analyze transportation impacts associated with changes to goods movement, which is largely carried out by heavy-duty trucks. CEQA Guidelines Section 15064.3(a) specifies that VMT to be analyzed is defined as the amount and distance of *automobile travel* (emphasis added) attributable to a project. The term "automobile" refers to on-road *passenger vehicles, specifically cars and light trucks* (emphasis added).[5] SB 743 is not intended to require the inclusion of heavy-duty truck trips, utility vehicles, or other types of vehicles in the VMT analysis.[6] In the case of trucks (other than light trucks), based on CARB's *2017 Scoping Plan* (CARB, 2017), the State's strategy for the goods movement sector is not in VMT reduction, but in advances in technology [zero-emissions (ZE) and near-zero emissions (NZE) control strategies].[7]

Automobile VMT Impact Assessment

CEQA Guidelines 15064.3(a) clarifies that the primary consideration in evaluating a project's transportation impacts for CEQA purposes is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: number of automobile trips generated and VMT. As described above, other than a temporary increase in vehicle activity associated with construction of the proposed gas plant modification at CUP Site #2 and construction of new well cellars, the proposed Project includes no permanent changes or increases in on- or off-site vehicle activities compared to existing baseline levels. Conservatively accounting for all new Project vehicle activity (see Table 2), including goods movements converted to automobile trips using the FHWA's appropriate PCE factor, the proposed Project is expected to generate 36 additional vehicle trips per day, which is less than OPR's 110 trips per day threshold for employee commute trips, and should therefore be screened out from the need of further VMT analysis for employee commute trips in accordance with OPR's guidance. Refer to Table 2 above and the data summary tables in Attachment 2 for additional detail. Thus, the proposed Project would result in less than significant transportation impacts under SB 743 from employee trips and associated automobile VMT.

[5] Governor's Office of Planning and Research. *Technical Advisory on Evaluating Transportation Impacts Under CEQA* (https://www.opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf).

[6] South Coast coordinated with staff at OPR on January 12, 2021 to confirm how to address heavy-duty freight VMT in CEQA documents. OPR staff identified that the intent of SB 743 was to address passenger vehicle VMT impact and not freight VMT, as cited under CEQA Guidelines Section 15064.3(a). Therefore, lead agencies could exclude freight VMT from transportation VMT impact analyses under CEQA.

[7] California Air Resources Board (CARB). *2017 Climate Change Scoping Plan: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target* (https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf).

In addition to total vehicle trip counts, the average VMT per capita (i.e., per onsite employee) was also quantified and compared to the applicable Los Angeles County thresholds summarized above. Specifically, excluding heavy-duty truck activity, per employee daily VMT totals were calculated, assuming that both gas system modifications and well cellar construction activities occurred on the same day. Per the calculations, on average the Project would result in an additional 5.3 VMTs per employee per day. Because the Project's daily VMTs are well below the applicable Los Angeles County threshold of 15.3 VMT's per employee per day described above, the Project would result in less than significant transportation impacts. See Attachment 2 for additional detail.

Truck VMT

As noted above, CEQA Guidelines Section 15064.3(a) specifies that VMT to be analyzed is defined as the amount and distance of *automobile travel* attributable to a project.[8] It does not require any analysis of increased VMT from heavy-duty truck trips. In fact, in CARB's 2017 Scoping Plan the State's strategy for the goods movement sector is not due to VMT reduction, but rather in advances in technology [ZE and NZE control strategies].[9]

Nonetheless, other than temporary truck trips associated with the gas plant modification and well cellar construction, the proposed Project would not generate a permanent increase in daily truck trips. For existing operations, larger heavy-duty trucks would continue to only be utilized on an intermittent basis, primarily for deliver materials and to transport drill rigs to the CUP Sites to facilitate drilling/redrilling activities as needed, and activity levels would not change or increase compared to existing/baseline levels. Thus, on a regional basis, the proposed Project operations would not result in a permanent change to regional and statewide truck VMTs.

While the Project's VMT impacts would be less than significant, to ensure that additional heavy-duty truck trips required during construction of the gas system modifications and/or well cellar construction do not exacerbate existing congestion issues within the City, Mitigation Measure TRANSPORTATION-1 shall be implemented (i.e., temporary heavy-duty trucks would be avoided during peak weekday traffic hours). See discussion above for additional detail.

Findings

As shown in Table 2 above, the Project is estimated to generate the equivalent maximum of 36 new vehicle trips per day as a result of employees, contractors and heavy-duty trucks traveling to and from the CUP Sites to facilitate construction of the gas system modifications at CUP Site #2 and well cellar construction. The Project's maximum daily vehicle trip count is below OPR's screening threshold of 110 trips per day, as well as the County's VMT threshold of 16.8% below the existing baseline VMT per capita levels within the South County region. For these reasons, the proposed Project would result in no new impacts related to

[8] South Coast AQMD staff conducted extensive research on the state's guidance for how to analyze truck VMT under SB 743 in CEQA documents. Searches included reviews of OPR's December 2018 Technical Advisory, CARB's 2017 Scoping Plan Update, the California Natural Resources Agency's rulemaking documents for the Updates to the 2019 CEQA Guidelines, which includes the incorporation of SB 743 requirements, and consultation with Southern California Association of Governments (SCAG) staff.
[9] See Footnote #6 above.

VMT, and would therefore not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)(3), and less than significant impacts would occur.

CEQA Guidelines, Transportation – Appendix G Checklist Question (c): *Would the proposed Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Based on the proposed Project description summarized above, which includes no significant permanent changes or increases in the number of existing external delivery and employee/contractor daily vehicle trips, or changes to the existing CUP Site ingress/egress access points, the proposed Project would create no impact to roadway hazards due to geometric design features or incompatible uses. Additionally, no road improvements are proposed or required as a result of the Project. For these reasons, the Project would not result in alterations to nearby roadways, installation or expansion of new driveways or geometric design features, or creation of incompatible uses along these roadways, and less than significant impacts would occur.

CEQA Guidelines, Transportation – Appendix G Checklist Question (d): *Would the proposed Project result in inadequate emergency access?*

Based on the proposed Project, described above, which includes no significant permanent changes or increases in the number of existing external delivery and employee/contractor daily vehicle trips, or changes to the existing CUP Site ingress/egress access points, the proposed Project would not impact existing CUP Site access or the City roadway network which could result in inadequate emergency access. Existing emergency access points and adjacent public roadways would have sufficient capacity to continue to serve the existing number of vehicles traveling to and from and between each CUP Site. Project equipment and vehicles would continue to be parked off of public roads within designated onsite parking areas, and would not block emergency access routes. Additionally, no road closures are proposed as a result of Project activities. Furthermore, SHP will continue to coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response. As a result, the proposed Project would not impede existing emergency access in the Project vicinity, and no impacts would occur.

CONCLUSION

Based upon review of the Project and the analysis presented above, SHP's continuation of existing oil and gas operations under CUP 97-03 for the proposed 20-year term is conservatively expected to generate a maximum equivalent of 36 new vehicle trips per day. It is also important to keep in mind that 28 of these new trips would be temporary (occurring for no more than 6 months) construction trips associated with the proposed gas system modifications at CUP Site #2. Once the new system is installed and fully operational, existing SHP employees/contractors would continue to conduct operations.

Furthermore, when taken all together assuming all vehicle activities occur simultaneously on a single day, vehicle activity associated with both the existing/baseline oil and gas operations and the proposed/new Project activities would generate an estimated total of 96 vehicle trips per day (60 for existing operations, and 36 for proposed). Therefore, even when considering cumulative vehicle activity on City roadways, the Project's maximum daily vehicle trip count is below OPR's screening threshold of 110 trips per day.

As such, Project impacts were found to be less than significant for CEQA Guidance, Transportation – Environmental Checklist Criteria (a) through (d) above for the transportation impact area. Please review and consider the attached information and feel free to contact me or John Hecht at (805) 275-1515, or Valerie Rosenkrantz at (352) 562-1520, if you have any questions or require additional information.

Kind regards,

Graham Stephens
Sespe Consulting, Inc.

ATTACHMENTS

1. Figures
2. Project Traffic Data/VMT Summary

ATTACHMENT 1

Figures

CITY OF SIGNAL HILL

Drill Site Map

Source: Signal Hill Petroleum, Inc. (2022)

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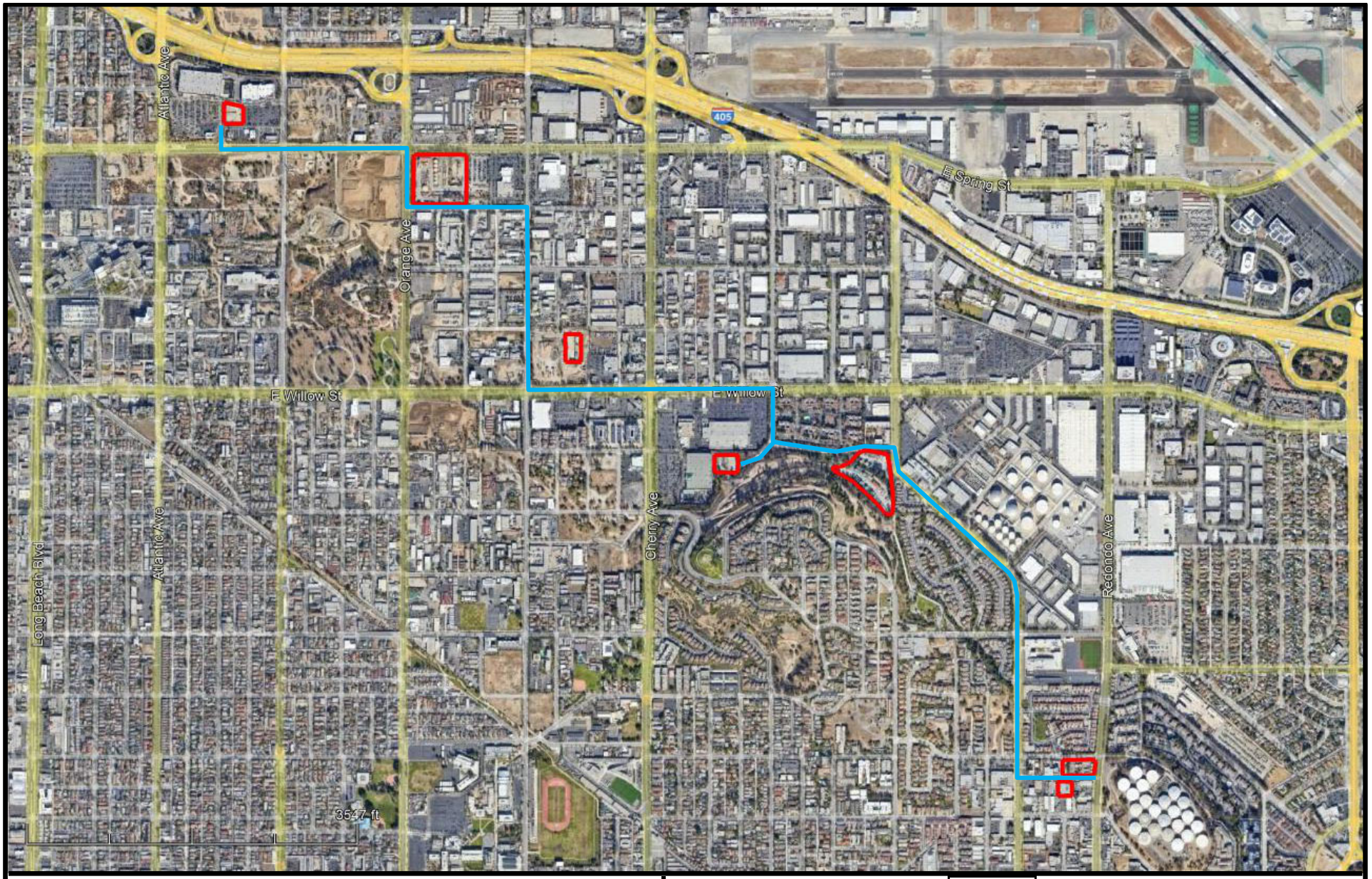
CUP 97-03 Sites (CUP Sites #1 through #7)

FIGURE 1

CUP 97-03 - PROJECT OVERVIEW
SHP - CUP Extension Project
2633 Cherry Avenue
Signal Hill, California 90755

PROJECT #:	210509.0416	DATE:	6/9/22
SCALE:	See Above	DRAWN BY:	GPS



Source: Google Earth (2022)

CUP 97-03 Sites (CUP Sites #1 through #7)

Primary Route of Travel

N

SESPE CONSULTING, INC.

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FIGURE 2	CUP 97-03 - PROJECT OVERVIEW SHP - CUP Extension Project 2633 Cherry Avenue Signal Hill, California 90755		
PROJECT #:	210509.0416	DATE:	6/9/22
SCALE:	See Above	DRAWN BY:	GPS

ATTACHMENT 2

Project Traffic Data/VMT Summary

Project VMT Summary

Existing/Ongoing Oil & Gas Operations									
Existing Operations				Daily Vehicle Activity				VMT Summary	
Activity	Frequency	Vehicle Type	Passenger Car Equivalence (PCE) Factor [F]	Vehicles/Roundtrips (inbound + outbound)	One-Way Trips	PCE Equivalent Roundtrips	PCE Equivalent One-Way Trips	Avg. Roundtrip Distance (miles)	Daily VMT
Operations Surveillance [A, B]	Daily	Light-Duty	1	2	4	2	4	7	14
Plant Operations [A, C]	Daily	Light-Duty	1	2	4	2	4	5	10
Surface Equipment Maintenance & Repairs [A]	Daily	Light-Duty	1	6	12	6	12	7	42
Downhole Well Servicing/Repairs [A]	Daily	Light-Duty	1	2	4	2	4	6.5	13
Misc. Maintenance & Site Visitors [A]	Daily	Light-Duty	1	2	4	2	4	7	14
Drilling/Redrilling Operations - Employee/Contractor [D]	Intermittently	Light-Duty	1	8	16	8	16	5	40
General Heavy-Duty Truck Activity [E]	Intermittently	Heavy-Duty	2	4	8	8	16	5	40
					Existing Daily Vehicle Trips:	**30**	**60**	**Existing Daily VMT:**	**173**

Proposed Project Operations (CUP Site #2 Gas System Modification, Well Cellar Construction)									
Proposed Operations				Daily Vehicle Activity				VMT Summary	
Activity [G, H]	Frequency [G, H]	Vehicle Type	Passenger Car Equivalence (PCE) Factor [F]	Roundtrips (inbound + outbound)	One-Way Trips	PCE Equivalent Roundtrips	PCE Equivalent One-Way Trips	Avg. Roundtrip Distance (miles)	Daily VMT
Gas System Modification - Contractor/Gear Trucks	Daily	Light-Duty	1	6	12	6	12	3	18
Gas System Modification - Heavy-Duty Trucks (Equipment/Deliveries)	Daily	Heavy-Duty	2	2	4	4	8	5	20
Gas System Modification - Ready-Mix Concrete (RMC) Trucks	Daily	Heavy-Duty	2	2	4	4	8	10	40
Well Cellar Construction - Employee/Contractor	Intermittently	Light-Duty	1	2	4	2	4	3	6
Well Cellar Construction - Equipment Delivery	Intermittently	Heavy-Duty	2	1	2	2	4	5	10
					Proposed Daily Vehicle Trips:	**18**	**36**	**Proposed Daily VMT:**	**94**

	Roundtrips	One-Way Trips		VMT
Total (Existing & Proposed) Daily Vehicle Trips:	**48**	**96**	**Total Daily VMT:**	**267**

Footnotes:

A - A total of twelve (12) to fourteen (14) employees per day currently work at and travel between the seven (7) CUP Sites during the course of normal operations. These existing employees and associated vehicle trips are collectively represented by the existing daily, light-duty vehicle activity (14 roundtrips total) shown above.

B - Represents two (2) well tester vehicles moving between the seven (7) CUP Sites each day (daily roundtrip distance from start to finish is approx. 7 miles).

C - Represents two (2) plant operators/vehicles working in two (2), 12-hour shifts at the plant facilities (average roundtrip distance from SHP office to/from plant facilities is approx. 5 miles).

D - Drilling/redrilling activity would not occur on a typical operational day. However, on intermittent days where drilling/redrilling were occurring, eight (8) additional employee/contractor vehicles would travel from SHP's office to the farthest CUP Site in light-duty vehicles (i.e., roundtrip distance to CUP Sites #6 and #7 is approx. 5 miles) to conduct these operations.

E - Although heavy-duty truck activity would be intermittent, it's assumed up to four (4) heavy-duty trucks would travel to/from the CUP Sites on a given day. These trips represent tanker trucks, larger material deliveries, equipment/drill rig transports, etc.

F - Federal Highway Administration (FHWA) guidance (https://www.fhwa.dot.gov/reports/tswstudy/Vol3-Chapter9.pdf) states *"On level terrain and in uncongested conditions conventional trucks may be equivalent to about **two** passenger cars in terms of their impact on traffic flow"*.

G - Construction of the gas system modifications would be temporary (completed in approx. 6 months), and vehicle trips would occur Monday-Friday only. Although vehicle activity would be intermittent, conservatively it's assumed all potential contractor light-duty and heavy-duty/RMC truck trips would occur in a single construction day. Once the system is fully installed, existing SHP employees/contractors would continue to conduct operations (i.e., there would be no permanent increase in vehicle trips to/from CUP Site #2 as a result of the gas system modifications).

H - Although well cellar construction would not occur on a typical operational day, conservatively its assumed one (1) SHP employee and one (1) equipment delivery roundtrip using a flatbed truck would occur.

Project VMT Summary

Los Angeles County VMT per Capita Thresholds		
Baseline VMT (VMT per Employee)	**% Below Baseline**	**Project VMT Per Employee Threshold**
18.4	16.8%	15.3

Source: Los Angeles County's *Transportation Impact Analysis Guidelines* (July 2020)

Existing/Ongoing Oil & Gas Operations					
Activity [A]	**Number of Employees/Vehicles [B]**	**Total VMT/Day**	**VMT/Employee**	**Threshold**	**Exceedance?**
Operations Surveillance	2	14	7	15.3	No
Plant Operations	2	10	5	15.3	No
Surface Equipment Maintenance & Repairs	6	42	7	15.3	No
Downhole Well Servicing/Repairs	2	13	6.5	15.3	No
Misc. Maintenance & Site Visitors	2	14	7	15.3	No
Drilling/Redrilling Operations - Employee/Contractor	8	40	5	15.3	No
		Average Daily VMT per Employee:	**6.3**		

See footnotes on previous sheet for additional detail.

A - Note, per Los Angeles County guidance, only light-duty/automobile VMT's are considered here (heavy-duty truck trips not considered for VMT per capita analysis)

B - Note that "Number of Employees/Vehicles" is equivalent to the number of roundtrips per day, as summarized on the previous table.

Proposed Project Operations (CUP Site #2 Gas System Modification, Well Cellar Construction)					
Activity [A]	**Number of Employees/Vehicles [B]**	**Total VMT/Day**	**VMT/Employee**	**Threshold**	**Exceedance?**
Gas System Modification - Contractor/Gear Trucks	6	18	3	15.3	No
Well Cellar Construction - Employee/Contractor	2	6	3	15.3	No
Well Cellar Construction - Equipment Delivery	1	10	10	15.3	No
		Average Daily VMT per Employee:	**5.3**		

See footnotes on previous sheet for additional detail.

A - Note, per Los Angeles County guidance, only light-duty/automobile VMT's are considered here (heavy-duty truck trips not considered for VMT per capita analysis)

B - Note that "Number of Employees/Vehicles" is equivalent to the number of roundtrips per day, as summarized on the previous table.