LINSCOTT LAW & GREENSPAN engineers

VEHICLE MILES TRAVELED STUDY

OCEAN KAMP PROJECT

Oceanside, California
July 14, 2021

LLG Ref. 3-19-3145

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Vehicle Miles Traveled (VMT) study to determine the potential VMT impacts of the proposed Ocean Kamp project, consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020.

The Ocean Kamp Project proposes a mix of commercial and residential uses. Commercial uses would be located within the central/southwestern portion of the site, and are proposed to include a 300-room resort hotel; approximately 126,000 SF of retail / commercial uses; and a wave lagoon. Multi-family residential uses are proposed to include approximately 700 units within the northern and eastern portions of the Project site. Access to the site is proposed primarily via Foussat Road at SR 76 and via Ocean Pointe at Mission Avenue.

The City's *Traffic Impact Analysis Guidelines* provide guidance on the preparation of VMT studies including the City's significance thresholds, screening criteria, and analysis methodology for a variety of land uses, including residential, employment, retail, and others. The Project proposes residential, retail/commercial and hotel uses. The analysis methodology used to identify potential VMT impacts is different for each of the Project's proposed land uses, as summarized in ***Table A***. The Project's individual uses were therefore analyzed independently of each other, per the City's *Traffic Impact Analysis Guidelines*.

TABLE A
CITY OF OCEANSIDE PROJECT THRESHOLD

Project Type	Metric	Significance Threshold
Residential	Resident VMT/Capita	15% below regional average
Retail / Commercial	Net increase in the regional VMT	Net increase in regional VMT
Hotel[a]	Employee VMT / Employee	15% below regional average

Footnotes:

a. The City's *Traffic Impact Analysis Guidelines* do not provide specific guidance pertaining to the analysis of regionally serving hotels. Therefore, the City of San Diego's guidelines were assumed, which direct hotel land uses to be analyzed under the "Commercial" land use methodology.

Source:

City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020, Table 5.

Based on the VMT analyses conducted for the Project, the VMT per employee for the proposed hotel use is less than 85% of the regional average and the proposed retail / commercial uses do not result in a net increase in the total Regional VMT. Therefore, these land use components of the Project would have a less-than-significant transportation impact and no mitigation measures are needed.

The VMT per capita for the proposed residential use is greater than 85% of the regional average, with the Project exceeding the significance threshold by 6.68%. Therefore, a significant

transportation impact is calculated for the residential component of the Project. This significant transportation impact requires the implementation of mitigation measures to reduce the Project's residential VMT per capita by 6.68% or more.

The CAPCOA measure *LUT-9: Improve Design of Development*, was identified as a measure that would reduce the Project's residential VMT as calculated using the SANDAG Series 13 Year 2020 Travel Demand Model. The Project's VMT reduction associated with LUT-9 is calculated to be 11.7%. This mitigation exceeds the Project's 6.68% VMT impact and is therefore considered sufficient to reduce the Project's residential VMT impact to less than significant.

In addition, the Project will coordinate with the City of Oceanside to provide a pedestrian crosswalk across Benet Road at Airport Road. This measure will help address the lack of pedestrian facilities on the eastern side of Benet Road between Airport Road and the San Luis River Trail, and will improve pedestrian and bicycle connectivity to the San Luis River Trail. The provision of continuous pedestrian and bicycle facilities encourages alternate modes of travel and may reduce the Project's VMT.

The Project will also implement the following trip reduction strategies as Project features and conditions of approval, with implementation required at 50% occupancy. These strategies will further reduce the number of automobile trips generated by residents of the Project and the distance that the residents drive:

- Provide Ride Share coordination services thru the Project's Home Owner's Association to match residents interested in carpooling.
- Coordinate with near-by schools and / or the Project's Home Owner's Association to match residents interested in carpooling to / from schools.
- Provide on-site transit opportunities information.
- Encourage bicycling by providing on-site bicycle infrastructure such as bike racks.

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1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Vehicle Miles Traveled (VMT) study to determine the potential VMT impacts of the proposed Ocean Kamp project, consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020.

This study includes the following:

- Project Description
- Vehicle Miles Traveled: Overview and Background
- Analysis Methodology & Significance Criteria
- VMT Analysis
- Significant Impacts and Mitigation Measures
- Conclusions

2.0 PROJECT DESCRIPTION

2.1 Project Location

The approximately 92-acre project site is located north of Mission Avenue and State Route 76 (SR 76), immediately east of Foussat Road and west of Fireside Street in the City of Oceanside. Surrounding land uses include the San Luis Rey River located north and west of the property, the Oceanside Municipal Airport to the west, Oceanside Fire Department Station No. 7 to the south (between SR 76 and Mission Avenue), the City of Oceanside's Mission Basin Groundwater Purification Facility located to the northeast, and a combination of single-family residential and commercial development and open space located to the east and south. A portion of the San Diego Gas & Electric (SDG&E) transmission line easement traverses the center of site in a north-south trend. The site has previously been used as a drive-in movie theater and swap meet.

Figure 2–1 shows the vicinity map. ***Figure 2–2*** shows a more detailed Project area map.

2.2 Project Background

An Environmental Impact Report (EIR) addressing development of the site was certified by the City of Oceanside in 2008 (State Clearinghouse No. 2006111033). The Pavilion at Oceanside project described in the EIR consisted of a 950,000-square foot (SF) shopping center with a variety of retail uses. The project application included a Tentative Parcel Map, Development Plan, five Conditional Use Permits (movie theater, health club, and three drive-through uses), and an Underground Waiver request for the existing high-voltage electrical transmission lines located on the site. The Tentative Parcel Map proposed to divide the project site into 10 parcels for leasing purposes, where each commercial parcel included building, hardscape/landscape, and parking areas. The Ocean Kamp project is updating the 2008 EIR with a Supplemental EIR.

A Traffic Impact Analysis Report dated March 2008 was prepared by RBF Consulting in conjunction with the certified EIR in which the Pavilion at Oceanside project was calculated to generate 32,175 Average Daily Trips (ADT). Mitigation measures were identified to address potential impacts to the surrounding street system.

The site is currently being graded pursuant to the conditions of the previously approved Pavilion at Oceanside project. Since this traffic study is tiering off the approved EIR for the site, the significance criteria utilized in that study was also utilized in this study.

2.3 Project Description

The Ocean Kamp Project proposes a mix of commercial and residential uses. Commercial uses would be located within the central/southwestern portion of the site, and are proposed to include a 300-room resort hotel; approximately 126,000 SF of retail / commercial uses; and a wave lagoon. Multi-family residential uses are proposed to include approximately 700 units within the northern and eastern portions of the project site.

A comprehensive network of trails throughout the Project area proposed to connect residential neighborhoods with easy access to the local shops, dining, recreational, and fitness facilities at the projects commercial center, while also providing additional recreational opportunity with access to the regional San Luis Rey River Trail. Paseos are proposed to create a finer pedestrian network between homes, neighborhoods and parks.

The Project proposes a number of parks linked by a series of trails to create an open space network of play areas. The intent is to offer recreational opportunities for all ages while creating places for people. Approximately 20 acres of the 92-acre project site will be dedicated open space, offering opportunities for walking, hiking, running and biking.

Access to the site is proposed primarily via Foussat Road at SR 76 and via Ocean Pointe at Mission Avenue.

Figure 2–3 shows the conceptual site plan.

The Project proposes a reduced density of commercial uses compared to the 950,000 SF of commercial uses proposed under the approved Pavilion at Oceanside project and will generate significantly fewer ADT (and associated VMT) than the approved Pavilion project. However, in order to provide a comprehensive assessment of the Project in relation to Existing conditions, the following transportation study has been prepared.

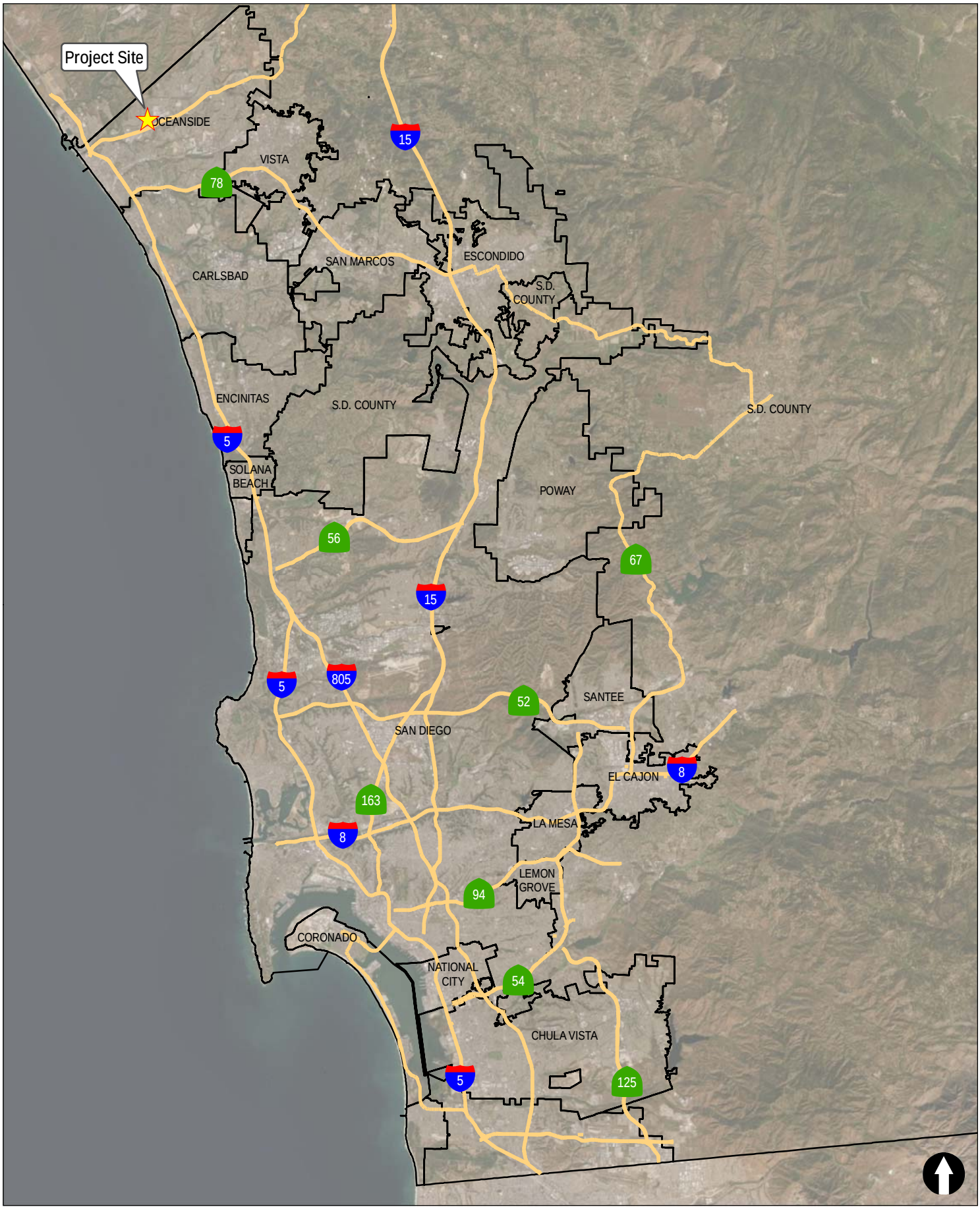

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Figure 2-1

Vicinity Map

OCEAN KAMP

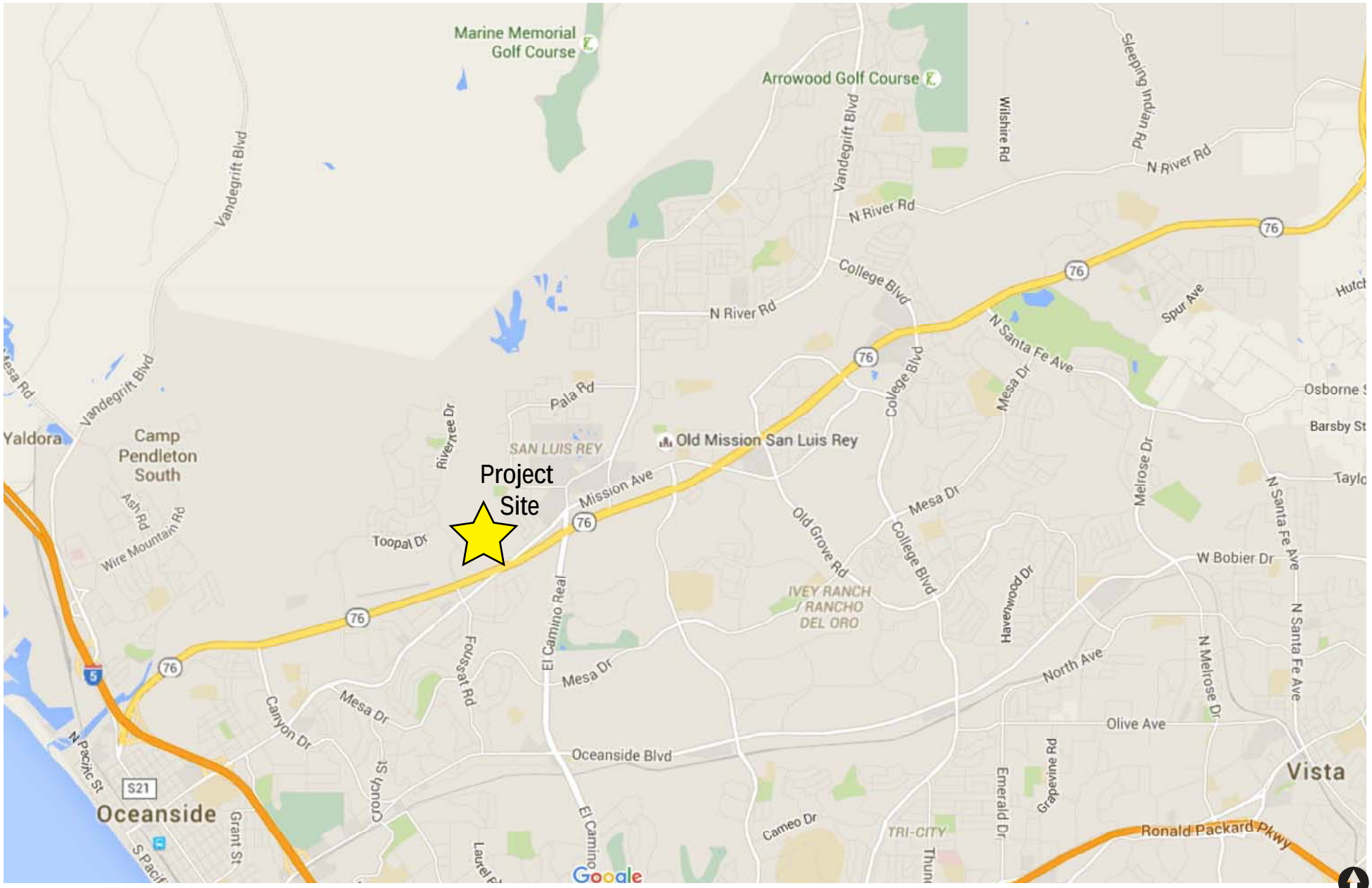

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Figure 2-2

Project Area Map

Ocean Kamp

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Figure 2-3

Site Plan

OCEAN KAMP

3.0 VEHICLE MILES TRAVELED: OVERVIEW AND BACKGROUND

This section presents an evaluation of potential transportation impacts of the Project as proposed by the California Governor's Office of Planning and Research (OPR) to implement California State Law Senate Bill (S.B.) 743.

3.1 VMT Background

VMT is a measurement of miles traveled by vehicles within a specified region and for a specified time period. VMT measures the efficiency of the transportation network and is calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (round trip) travel and is often estimated for a typical weekday to measure transportation impacts.

3.2 Senate Bill 743

In September 2013, the Governor signed SB 743 into law, starting a process that fundamentally changes the way transportation impact analyses are conducted under CEQA. These changes include the elimination of auto delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts. The guidance identifies VMT as the most appropriate CEQA transportation metric, along with the elimination of auto delay/LOS for CEQA purposes statewide. The rationale for this paradigm shift is that auto delay/LOS impacts lead to improvements that increase roadway capacity, and therefore induce more traffic and associated greenhouse gas emissions.

In December 2018, after over five years of stakeholder-driven development, the California Natural Resource Agency certified and adopted the CEQA Statute. As of July 1, 2020, the VMT guidelines apply to all jurisdictions statewide.

4.0 VMT ANALYSIS METHODOLOGY & SIGNIFICANCE CRITERIA

4.1 Local / Regional Agency Transition to SB743

San Diego's local Institute of Transportation Engineers (ITE) SB 743 Subcommittee published *Guidelines for Transportation Impact Studies in the San Diego Region* in May 2020. The City of Oceanside published the *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* in August 2020 that provides significance determination thresholds for VMT and VMT analysis methodologies. The City's *Traffic Impact Analysis Guidelines* was utilized as the basis for the VMT analysis.

4.2 Analysis Methodology

4.2.1 *Screened Out Projects*

SB 743 eliminates the need for some projects that support VMT reduction to be analyzed for CEQA purposes. These projects are considered screened out from VMT analysis. "Screened out" is defined as projects not needed to be analyzed for CEQA purposes that already support VMT reduction.

The projects listed below in ***Table 4–1*** *(*Table 2 of the City's *Traffic Impact Analysis Guidelines)* are presumed to be considered VMT-reducing projects. The projects listed are either locally serving or are based on substantial evidence provided by the OPR Technical Advisory Committee supporting SB 743 implementation.

The proposed Ocean Kamp project does not fall within any of the categories listed in *Table 4–1*, and the Project is therefore not presumed to have a less than significant VMT impact due to project characteristics and/or location. Therefore, a transportation VMT analysis using the SANDAG Regional Travel Demand Model was conducted, consistent with the City's *Traffic Impact Analysis Guidelines*.

4.2.2 *SANDAG Regional Travel Demand Model*

Projects that are not presumed to have a less than significant VMT impact due to project characteristics and/or location (i.e., projects that are not screened out), and that are calculated to generate more than 2,400 ADT require use of the SANDAG model to determine VMT, per the City's *Traffic Impact Analysis Guidelines*. The SANDAG transportation model provides a systematic analytical platform so that different alternatives and inputs can be evaluated in an iterative and controlled environment. The proposed Ocean Kamp project is calculated to generate 19,040 weekday ADT and therefore uses the SANDAG model to determine VMT.

In order to calculate the Project's VMT, a custom SANDAG Series 13 Year 2020 Travel Demand Model was developed to include the proposed land uses. The following land uses were manually included in the model:

- 700 multi-family residential dwelling units
- 126,000 SF of retail / commercial uses
- 300-room resort hotel

It should be noted that the Series 14 model platform is the most recent SANDAG model available. However, this model is not currently not capable of running custom land use scenarios and it is not possible to input the Project's land uses in the Series 14 model. Therefore, Series 13 was used.

4.3 VMT CEQA Significance Determination Thresholds

The City's *Traffic Impact Analysis Guidelines* provide guidance on the preparation of VMT studies including the City's significance thresholds, screening criteria, and analysis methodology for a variety of land uses, including residential, employment, retail, and others. The Project proposes residential, retail/commercial and hotel uses. The analysis methodology used to identify potential VMT impacts is different for each of the Project's proposed land uses, as summarized below in ***Table 4-2***. The Project's individual uses were therefore analyzed independently of each other, per the City's *Traffic Impact Analysis Guidelines.*

Table 4-2 identifies the significance thresholds for proposed land uses, per the City's *Traffic Impact Analysis Guidelines*. Projects that exceed the significance thresholds are considered significant and will require VMT analysis and mitigation.

A discussion of the land use classification for each of the proposed Project components is summarized below.

4.3.1 *Residential Uses*

The Project includes the development of 700 multi-family residential units. This portion of the Project is evaluated as a "Residential" use. The threshold for the determination of a significant transportation VMT impact for Residential uses is 15% below the average Regional VMT per capita, which is considered the "baseline" condition.

4.3.2 *Retail / Commercial Uses*

The Project includes the development of approximately 126,000 SF of retail / commercial uses. This portion of the Project is evaluated as a "Retail" use. Per the City's *Traffic Impact Analysis Guidelines*, locally serving retail uses are presumed to decrease VMT. However, retail projects over 50,000 SF are considered regionally serving and require the preparation of a VMT analysis. The threshold for the determination of a significant transportation VMT impact for Retail uses is any net increase in total Regional VMT.

4.3.3 *Hotel Uses*

The Project includes the development of a 300-room resort hotel. The City's *Traffic Impact Analysis Guidelines* do not provide specific guidance pertaining to the analysis of regionally serving hotels. Therefore, the City of San Diego's guidelines were assumed, which direct hotel land uses to be analyzed under the "Commercial" land use methodology. The threshold for the determination of a significant transportation VMT impact for Commercial uses is 15% below the average Regional VMT per employee, which is considered the "baseline" condition.

TABLE 4–1
SCREENED OUT PROJECTS

Project Type
Projects located in a Transit Priority Areas (TPA) or Smart Growth Opportunity Area as identified in the most recent SANDAG San Diego Forward Regional Plan and is consistent with the General Plan at the time of project application. [a, b]
Projects located in a low-VMT generating area identified on the most recent SANDAG SB 743 VMT Screening map
Locally serving K-12 schools
Day care centers
Local Parks
Locally Serving retail uses less than 50,000 square feet, including: gas stations, banks, restaurants, grocery stores, and shopping centers
Community institutions (Public libraries, fire stations, local government)
Locally serving hotels (e.g., non-destination hotels, non-regionally serving
Student housing projects on or adjunct to college campuses
Local serving community colleges that are consistent with the assumptions noted in the most recent SANDAG Regional Transportation Plan/Sustainable Communities Strategy
Affordable housing projects [c]
Assisted living facilities
Senior housing (as defined by HUD)
Transit Project
Bike Projects
Pedestrian projects
Safety improvement projects (e.g., RRFBs and high visibility crosswalks at uncontrolled locations, pedestrian count down timers, additionally projects identified through the Highway Safety Improvement Program)
Safe Routes to School
Projects generating less than 500 daily vehicle trips (if inconsistent with adopted General Plan)
Projects generating less than 1,000 daily vehicle trips (if consistent with adopted General Pan)

Footnotes:

Source: City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020; *Table 2*

a. Projects located in a TPA must be able to access the transit station within a ½ mile walking distance or 6-minute walk continuously without discontinuity of sidewalk or obstructions to the route. Qualifying transit stops means a site containing an existing rail transit station 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 (OPR, 2017). A high-quality transit corridor may also be considered if a corridor with fixed route bus service has service intervals no longer than 15 minutes during peak commute hours (OPR, 2017).

b. Smart Growth Opportunity Area Map is provided in Appendix B of the City's Traffic Impact Analysis Guidelines. The most recent version available shall be used.

c. If a project is a mix of affordable housing and market rate housing or unscreened use, only the affordable housing component would qualify as screened out. Additionally, any removal of affordable housing automatically requires CEQA VMT analysis.

TABLE 4-2
CITY OF OCEANSIDE PROJECT THRESHOLD

Project Type	Metric	Significance Threshold
Residential	Resident VMT/Capita	15% below regional average
Retail / Commercial	Net increase in the regional VMT	Net increase in regional VMT
Hotel[a]	Employee VMT / Employee	15% below regional average

Footnotes:

a. The City's *Traffic Impact Analysis Guidelines* do not provide specific guidance pertaining to the analysis of regionally serving hotels. Therefore, the City of San Diego's guidelines were assumed, which direct hotel land uses to be analyzed under the "Commercial" land use methodology.

Source:

City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020, Table 5.

5.0 VMT ANALYSIS

The Project was evaluated to identify potential significant VMT impacts based on the significance determination thresholds and methodology described above in *Section 4*. The analysis methodology used to identify potential VMT impacts is different for each of the Project's proposed land uses, and therefore the Project's individual uses are analyzed independently of each other, per the City's *Traffic Impact Analysis Guidelines*.

5.1 Residential Uses

The Project includes the development of 700 multi-family residential units. The threshold for the determination of a significant transportation VMT impact for Residential uses is 15% below the average Regional VMT per capita (baseline). None of the project types listed in *Table 4-1* are applicable to this component of the Project and the Project is therefore not presumed to have a less than significant VMT impact due to project characteristics and/or location (i.e., is not screened out). Therefore, a transportation VMT analysis using the SANDAG Regional Travel Demand Model was conducted per the City's *Traffic Impact Analysis Guidelines*.

In order to calculate the VMT for the Regional average baseline and for the Project, the SANDAG Series 13 Travel Demand Model was used. The model generates a land use-specific average trip length as well as an average daily volume, which ultimately calculates the total residential VMT per capita, both regionwide and for the Project. The SANDAG Series 13 Year 2020 Travel Demand Model results are included in ***Appendix A.***

Table 5–1 summarizes the Regional average baseline VMT results provided by SANDAG using the Series 13 model. As seen in *Table 5–1*, the Regional average baseline VMT per capita is 17.6 miles per resident. For the purpose of determining the significance of VMT impacts, the Project VMT per capita would need to be 85% below the Regional average, which equates to 14.96 VMT per capita.

Similar to the Regional average baseline calculations, the Project VMT per capita was determined based on the VMT results for the Project specific Traffic Analysis Zone (TAZ) provided by SANDAG using the Series 13 model. The Project site is located in TAZ 361. As shown in *Table 5–1*, the average VMT per capita for TAZ 361 is calculated at 16.0 VMT per capita (or 90.91% of the Regional baseline average).

Since the Project VMT per capita is greater than 85% of the Regional average, **the residential component of the Project is calculated to result in a significant transportation impact.**

The results of the Project VMT comparison indicate that the Project would exceed the significance threshold by 6.68%. This would require a reduction of 6.68% or more to reduce the VMT to below the significance threshold.

TABLE 5–1
VMT PER CAPITA ANALYSIS

Project Type	Metric	Average Regional Baseline VMT/Capita[a]	Significance Threshold (85% of Regional Baseline)	Project VMT/ Capita (TAZ 361)[b]	Transportation Impact? (Over Threshold?)
Residential	Resident VMT/Capita	17.6	14.96	16.0	**Yes**

Footnotes:

a. SANDAG Year 2012 Series 13 Regional Average VMT per capita.

b. Custom SANDAG Year 2020 Series 13 traffic model processed February, 2020

5.2 Retail / Commercial Uses

The Project includes the development of approximately 126,000 SF of retail / commercial uses. This portion of the Project is evaluated as a "Retail" use. The threshold for the determination of a significant transportation VMT impact for Retail uses is any net increase in total Regional VMT.

None of the project types listed in *Table 4-1* are applicable to this component of the Project and the Project is therefore not presumed to have a less than significant VMT impact due to project characteristics and/or location (i.e., is not screened out). Therefore, a transportation VMT analysis using the SANDAG Regional Travel Demand Model was conducted per the City's *Traffic Impact Analysis Guidelines*.

In order to calculate the Project induced change to regional VMT, LLG coordinated with SANDAG to input the Project into the SANDAG Series 13 Year 2020 Travel Demand Model. The model generates a land use-specific average trip length as well as an average daily volume.

The Project site is located in TAZ 361. Two models were obtained: a total gross regionwide VMT report for baseline (without Project) conditions, and a total gross regionwide VMT report including the proposed Project. The SANDAG Series 13 Year 2020 Travel Demand Model results are included in ***Appendix A***.

Table 5–2 summarizes the gross regionwide VMT under baseline (without Project) and "with Project" conditions. As seen in *Table 5–1*, the total gross regionwide VMT without the Project is 84,682,067. The total gross regionwide VMT with the Project is 83,764,311. Therefore, the Project is expected to reduce regional VMT by 917,756 (a reduction of 0.011% of the regional VMT).

Since the Project does not result in a net increase in the total regional VMT, the retail/commercial component of the Project is calculated to result in a less-than-significant transportation impact.

TABLE 5–2
TOTAL REGIONAL VMT ANALYSIS

Project Type	Total Gross Regionwide VMT (without Project)	Total Gross Regionwide VMT (with Project)	Increase / (Decrease) in VMT	Transportation Impact? (Over Threshold?)
Retail / Commercial	84,682,067	83,764,311	(917,756)	No

Source: SANDAG, February 2020

5.3 Hotel Uses

The Project includes the development of a 300-room resort hotel. The threshold for the determination of a significant transportation VMT impact for this type of use is 15% below the average Regional VMT per employee (baseline). None of the project types listed in *Table 4-1* are applicable to this component of the Project and the Project is therefore not presumed to have a less than significant VMT impact due to project characteristics and/or location (i.e., is not screened out). Therefore, a transportation VMT analysis using the SANDAG Regional Travel Demand Model was conducted per the City's *Traffic Impact Analysis Guidelines*.

In order to calculate the VMT for the Regional average baseline and for the Project, the SANDAG Series 13 Travel Demand Model was used. The model generates a land use-specific average trip length as well as an average daily volume, which ultimately calculates the total employee VMT per employee, both regionwide and for the Project. The SANDAG Series 13 Year 2020 Travel Demand Model results are included in *Appendix A.*

Table 5–3 summarizes the Regional average baseline VMT results provided by SANDAG using the Series 13 model. As seen in *Table 5–1*, the Regional average baseline VMT per employee is 25.9 miles per employee. For the purpose of determining the significance of VMT impacts, the Project VMT per employee would need to be 85% below the Regional average, which equates to 22.02 VMT per employee.

Similar to the Regional average baseline calculations, the Project VMT per employee was determined based on the VMT results for the Project specific TAZ provided by SANDAG using the Series 13 model. The Project site is located in TAZ 361. As shown in *Table 5–3*, the average VMT per employee for TAZ 361 is calculated at 19.2 VMT per employee (or 74.13% of the Regional baseline average).

Since the Project VMT per employee is less than 85% of the Regional average, the hotel component of the Project is calculated to result in a less-than-significant transportation impact.

TABLE 5–3
VMT PER EMPLOYEE ANALYSIS

Project Type	Metric	Average Regional Baseline VMT/Employee[a]	Significance Threshold (85% of Regional Baseline)	Project VMT/ Employee (TAZ 361)[b]	Transportation Impact? (Over Threshold?)
Hotel[a]	Employee VMT / Employee	25.9	22.02	19.2	No

Footnotes:

a. SANDAG Year 2012 Series 13 Regional Average VMT per employee.

b. Custom SANDAG Year 2020 Series 13 traffic model processed February, 2020

6.0 VMT IMPACTS SUMMARY & MITIGATION MEASURES

Based on the VMT analyses conducted for the Project, the VMT per employee for the proposed hotel use is less than 85% of the regional average and the proposed retail / commercial uses do not result in a net increase in the total Regional VMT. Therefore, these land use components of the Project would have a less-than-significant transportation impact and no mitigation measures are needed.

The VMT per capita for the proposed residential use is greater than 85% of the regional average, with the Project exceeding the significance threshold by 6.68%. Therefore, a significant transportation impact is calculated for the residential component of the Project. This significant transportation impact requires the implementation of mitigation measures to reduce the Project's residential VMT per capita by 6.68% or more.

The City's *Traffic Impact Analysis Guidelines* recommend the *SANDAG Mobility Management Guidebook*, 2019, and the California Air Pollution Control Officers Association's (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, August 2010 be consulted to determine applicable mitigation measures and to calculate the associated percent reduction in VMT.

The CAPCOA measure *LUT-9: Improve Design of Development*, was identified as a measure that would reduce the Project's residential VMT as calculated using the SANDAG Series 13 Year 2020 Travel Demand Model, thereby mitigating the Project's significant transportation impact. This measure was selected since the Project's features meet the measure's description and applicability criteria. A brief description of CAPCOA measure LUT-9 is provided below.

- LUT-9 Improve Design of Development: Includes improved design elements to enhance walkability and connectivity. Improved street network characteristics within a neighborhood include street accessibility, usually measured in terms of average block size, proportion of four-way intersections, or number of intersections per square mile. Design is also measured in terms of sidewalk coverage, building setbacks, street widths, pedestrian crossings, presence of street trees, and a host of other physical variables that differentiate pedestrian-oriented environments from auto-oriented environments. This measure is applicable for residential projects in an urban or suburban area.

The VMT reductions for this strategy are based on changes in intersection density versus the standard suburban intersection density in North America, which is 36 intersection per square mile, per the CAPCOA document. This standard density is used as a baseline to mirror the density reflected in the ITE Trip Generation Manual, which is generally the baseline method for determining VMT.

To calculate the VMT reduction for this measure, the number of intersections per square mile within the Project site were estimated and compared to the number of intersections in a typical ITE suburban development.

The Project site is located on approximately 92-acres, which equates to approximately 0.14 square miles. The conservative estimate of ten intersections within the Project site equals 71 intersections per square mile. Based on this information, the corresponding VMT reduction was calculated using the CAPCOA methodology for LUT-9.

The Project's VMT reduction associated with LUT-9 is calculated to be 11.7%. This mitigation exceeds the Project's 6.68% VMT impact and is therefore considered sufficient to reduce the Project's residential VMT impact to less than significant. ***Table 6–1*** summarizes the VMT mitigation results.

Appendix B contains the CAPCOA VMT calculations and excerpts from the CAPCOA report.

TABLE 6–1
RESIDENTIAL VMT MITIGATION RESULTS

Mitigation Measure	Range of Effectiveness	Intersections / Square Mile	Resulting VMT Reduction	Project VMT to be Reduced	Impact Fully Mitigated?
LUT-9: Improve Design of Development	3.0-21.3% VMT	71	11.7%	6.68%	Yes

General Notes:

1. Results based on methodology from *Quantifying Green House Gas Mitigation Measures* (CAPCOA – 2010)

In addition, the Project will coordinate with the City of Oceanside to provide a pedestrian crosswalk across Benet Road at Airport Road. This measure will help address the lack of pedestrian facilities on the eastern side of Benet Road between Airport Road and the San Luis River Trail, and will improve pedestrian and bicycle connectivity to the San Luis River Trail. The provision of continuous pedestrian and bicycle facilities encourages alternate modes of travel and may reduce the Project's VMT.

The Project will also implement the following trip reduction strategies as Project features and conditions of approval, with implementation required at 50% occupancy. These strategies will further reduce the number of automobile trips generated by residents of the Project and the distance that the residents drive:

- Provide Ride Share coordination services thru the Project's Home Owner's Association to match residents interested in carpooling.
- Coordinate with near-by schools and / or the Project's Home Owner's Association to match residents interested in carpooling to / from schools.
- Provide on-site transit opportunities information.
- Encourage bicycling by providing on-site bicycle infrastructure such as bike racks.

LINSCOTT LAW & GREENSPAN
engineers

TECHNICAL APPENDICES TO THE VEHICLE MILES TRAVELED STUDY

OCEAN KAMP PROJECT

Oceanside, California

July 14, 2021

LLG Ref. 3-19-3145

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APPENDIX A

SANDAG SERIES 13 YEAR 2020 TRAVEL DEMAND MODEL RESULTS

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Vehicle Miles of Travel Report

Scenario ID 1184 — **Ocean Kamp - 2020rc - Regional, City and TAZ 361**

Aggregate VMT

Gross VMT

Geography	VMT
Regionwide	83,764,311
Clip 1	
Clip 2	

Distribution VMT

Query	Type	Description	VMT
1	Zone		-
2	Link		-
3	Zone		-
4	Link		-

SB-743 VMT

VMT per Resident

Geography		Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide		1184	3,437,751	12,313,866	76,623,457	55,396,971	16.1
Jurisdiction	Oceanside	1184	180,155	644,921	3,939,123	2,891,238	16.0
Site	TAZ 361	1184	2,036	7,404	44,361	32,545	**16.0**

VMT per Employee

Geography		Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide		1184	1,445,564	4,982,637	40,302,452	35,073,606	24.3
Jurisdiction	Oceanside	1184	43,792	156,208	1,091,848	915,291	20.9
Site	TAZ 361	1184	298	1,019	6,669	5,713	**19.2**

Report Generated: 03/17/21

SANDAG

Amelia Giacalone

From: Yu, Limeng <Limeng.Yu@sandag.org>
Sent: Wednesday, December 23, 2020 1:26 PM
To: Amelia Giacalone
Cc: John A. Boarman; Calandra, Mike; Curry, Rick
Subject: RE: Ocean Kamp VMT Model -- ADT plot, SB743 VMT and loaded network

Here you are.

Scenario ID	Scenario VMT	Network
Series 13		
989	80,164,133	2012
991	84,682,067	2020rc
995	88,073,372	2025rc
994	90,929,699	2030rc
993	92,447,083	2035rc
948	96,753,962	2050rc

From: Amelia Giacalone <giacalone@llgengineers.com>
Sent: Wednesday, December 23, 2020 11:34 AM
To: Yu, Limeng <Limeng.Yu@sandag.org>
Cc: John A. Boarman <boarman@llgengineers.com>; Calandra, Mike <Mike.Calandra@sandag.org>; Curry, Rick <Rick.Curry@sandag.org>
Subject: RE: Ocean Kamp VMT Model -- ADT plot, SB743 VMT and loaded network

Hi Limeng,

Can you please provide me with the Regionwide Gross VMT for the Year 2020 "off-the shelf" Series 13 model?

Thank you,

Amelia Giacalone
Transportation Planner III
giacalone@llgengineers.com

Project Overview	
Growth Forecast	13
ABM Version	13.3.2
Project Name	Ocean Kamp
Horizon Year	2020
Scenario ID	1184
Scenario Header	2020rc
Report Geography	Regional, City and TAZ 361
Workspace	t:\projects\sr13\sb\LLG\OceanKamp\abm_runs\2020rc

APPENDIX B

CAPCOA VMT CALCULATIONS AND EXCERPTS FROM THE CAPCOA REPORT

Transportation Measures (five subcategories) Global Maximum Reduction (all VMT)

Max 20.0% | Project 11.7%

Global cap for road pricing needs further study

Transportation Measures (four categories) Cross-Category Max Reduction (all VMT)

Max 15.0% | Project 11.7%

Max Reduction = 15% Overall; Work VMT = 25% School VMT = 65%

Max (Work) 25% | Project 0.0%

Max Reduction = 25%

Max 25% | Project 0.0%

Land Use / Location	Neighborhood / Site Enhancement	Parking Policy / Pricing	Transit System Improvements	Commute Trip Reduction (Assumes mixed use)	Road Pricing Management	Vehicles
Max 10% | Project 11.7%	Max 5% | Project 0.0%	Max 20% | Project 0.0%	Max 10% | Project 0.0%	Max (Work) 25% | Project 0.0%	Max 25% | Project 0.0%	
Increase Density (LUT-1) Max **30.0%** | Project **0.0%**	**Pedestrian Network (SDT-1)** Max **2.0%** | Project **0.0%**	**Parking Supply Limits (PDT-1)** Max **12.5%** | Project **0.0%**	**Rapid Bus Transit System (TST-1)** Max **3.2%** | Project **0.00%**	**CTR Program Voluntary (TRT-1)** Max **6.2%** | Project **0.0%**	**Area/Cordon Pricing (RPT-1)** Max **22.0%** | Project **0.0%**	Electrify Loading Docks/Idling-Reduction Systems VT-1
Location Efficiency[1] (LUT-2) Max 10.0%	**Traffic Calming (SDT-2)** Max **1.0%** | Project **0.00%**	**Unbundled Parking Costs (PDT-2)** Max **13.0%** | Project **0.0%**	Transit Access Improvements (TST-2)	**CTR Program Required (TRT-2)** Max **21.0%** | Project **0.0%**	Traffic Flow Improvement (RPT-2)	Utilize Alternative Fueled Vehicles VT-2
Mixed-Use (LUT-3) Max **30.0%** | Project **0.0%**	**NEV Network (SDT-3)** Max **12.7%** | Project **0.0%**	**Price On-Street Parking (PDT-3)** Max **5.5%** | Project **0.0%**	**Expand Transit Network (TST-3)** Max **8.2%** | Project **0.0%**	**Ride Share Programs (TRT-3)** Max **15.0%** | Project **0.0%**	Contributions to Transportation Infrastructure (RPT-3)	Utilize Electric or Hybrid Vehicles VT-3
Destination Accessibility (LUT-4) Max **20.0%** | Project **0.0%**	Non-Motorized Zones (SDT-4)	Residential Area Parking Permits (PDT-4)	**Transit Frequency/Speed (TST-4)** Max **2.5%** | Project **0.00%**	**Transit Fare Subsidy (TRT-4)** Max **20.0%** | Project **0.0%**	Park and Ride Lots (RPT-4)	
Transit Accessibility (LUT-5) Max **24.6%** | Project **0.0%**	Bike Lane Street Design (On-Site) (SDT-5)		Bike Parking Near Transit (TST-5)	End of Trip facilities (TRT-5)		
Affordable Housing (LUT-6) Max **1.2%** | Project **0.00%**	Non-Residential Bike Parking (SDT-6)		Local Shuttles (TST-6)	**Alt. Work Schedule & Telecommute (TRT-6)** Max **5.5%** | Project **0.0%**		
Non-Auto Corridor (LUT-7)	Multi-Unit Residential Bike Parking (SDT-7)			**CTR Marketing (TRT-7)** Max **4.0%** | Project **0.0%**		
Proximity to Bike Path/Bike Lane (LUT-8)	Electric Vehicle Parking (SDT-8)			Preferential Parking Permit (TRT-8)		
Design (LUT-9) Max 21.3% | Project 11.7%	Dedicate Land for Bike Trails (SDT-9)			**Car Share Program (TRT-9)** Max **0.7%** | Project **0.0%**		
				School Pool Program (TRT-10) Max **15.8%** | Project **7.2%**		
				Employer Sponsored Vanpool/Shuttle (TRT-11) Max 13.4% | Project 0.0%		
				Bike Share Program (TRT-12)		
				School Bus Program (TRT-13) Max **63.0%** | Project **0.0%**		
				Workplace Parking Pricing (TRT-14) Max **19.7%** | Project **0.0%**		
				Employee Parking Cash-Out (TRT-15) Max **7.7%** | Project **0.0%**		

General Notes:

A. Strategies in bold text are primary strategies with reported VMT reductions. Non-bolded strategies are support or grouped strategies.

Footnotes:

1. This measure is not intended as a separate strategy but rather a cap for all land use/locations strategies.

LINSCOTT LAW & GREENSPAN engineers

Transportation Strategies Organization Chart

Date: 3/17/2021

LLG Ref: 3-19-3145

Project Name: Ocean Kamp

Project Settings: Suburban Center/Suburban with NEV without Neighborhood Electric Vehicle Network

Notes:

Section:	3.1.9		**Improve Design Development**	
Measure:	LUT-9		Min	3.0%
Utilize:	☑		Max	21.3%
			Intersection per Square Mile (int/sq.mi) of Project	71
			Int/sq.mi of a Typical ITE Suburban Development	36
		A	% Increase in Int/sq.mi of Project vs. Int/sq.mi of a Typical ITE Suburban Development[1] [not to exceed 500%]	97.2%
		B	Elasticity of VMT with Respect to Percentage of Intersections	0.12
			VMT Reduction = A x B	11.7%
			VMT Reduction Utilized	11.7%

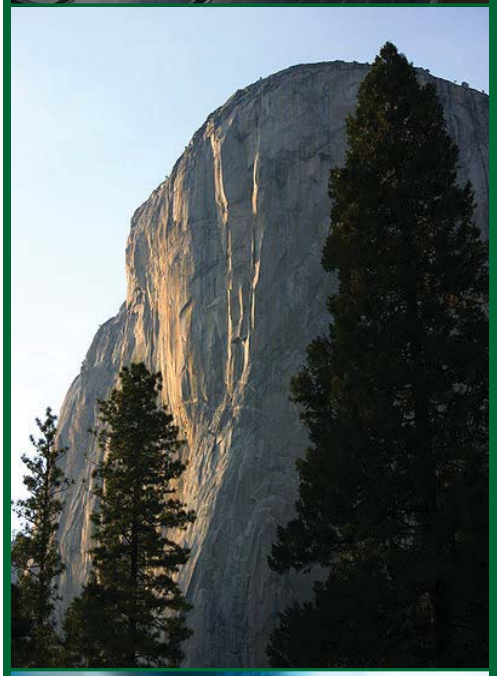
Footnotes:

1. See the formula utilized below to calculate this parameter per the CAPCOA Report.

$$A = \frac{int.per\ sq.mile\ of\ project\ - int.per\ sq.mile\ of\ typical\ suburban\ development}{int.per\ sq.mile\ of\ typical\ suburban\ development}$$

CAPCOA

CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION



Quantifying Greenhouse Gas Mitigation Measures

A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures

August, 2010

3.1.9 Improve Design of Development

Range of Effectiveness: 3.0 – 21.3% vehicle miles traveled (VMT) reduction and therefore 3.0-21.3% reduction in GHG emissions.

Measure Description:

The project will include improved design elements to enhance walkability and connectivity. Improved street network characteristics within a neighborhood include street accessibility, usually measured in terms of average block size, proportion of four-way intersections, or number of intersections per square mile. Design is also measured in terms of sidewalk coverage, building setbacks, street widths, pedestrian crossings, presence of street trees, and a host of other physical variables that differentiate pedestrian-oriented environments from auto-oriented environments.

Measure Applicability:

- Urban and suburban context
- Negligible impact in a rural context
- Appropriate for residential, retail, office, industrial and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Number of intersections per square mile

Mitigation Method:

$$\% \text{ VMT Reduction} = \text{Intersections} * B$$

Where

Intersections = Percentage increase in intersections versus a typical ITE suburban development

$$= \frac{\text{Intersections per square mile of project} - \text{Intersections per square mile of typical ITE suburban development}}{\text{Intersections per square mile of typical ITE suburban development}}$$

$$= \frac{\text{Intersections per square mile of project} - 36}{36}$$

See Appendix C for detail [not to exceed 500% increase]

B = Elasticity of VMT with respect to percentage of intersections (0.12 from [1])

Assumptions:

Data based upon the following references:

[1] Ewing, R., and Cervero, R., "Travel and the Built Environment - A Meta-Analysis." *Journal of the American Planning Association*, <to be published> (2010). Table 4.

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[43]
CO_2e	3.0 – 21.3% of running
PM	3.0 – 21.3% of running
CO	3.0 – 21.3% of running
NOx	3.0 – 21.3% of running
SO_2	3.0 – 21.3% of running
ROG	1.8 – 12.8% of total

Discussion:

The VMT reductions for this strategy are based on changes in intersection density versus the standard suburban intersection density in North America. This standard density is used as a baseline to mirror the density reflected in the *ITE Trip Generation Manual*, which is the baseline method for determining VMT.

The calculations in the Example section look at a low and high range of intersection densities. The low range is simply a slightly higher density than the typical ITE

[43] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

development. The high range uses an average intersection density of mixed use/transit-oriented development sites (TOD Site surveys in the Bay Area for *Candlestick-Hunters Point Phase II TIA,* Fehr & Peers, 2009).

There are two separate maxima noted in the fact sheet: a cap of 500% on the allowable percentage increase of intersections per square mile (variable A) and a cap of 30% on % VMT reduction. The rationale for the 500% cap is that there are diminishing returns to any change in environment. For example, it is reasonably doubtful that increasing intersection density by a factor of six instead of five would produce any additional change in travel behavior. The purpose for the 30% cap is to limit the influence of any single environmental factor (such as design). This emphasizes that community designs that implement multiple land use strategies (such as density, design, diversity, etc.) will show more of a reduction than relying on improvements from a single land use factor.

Example:

Sample calculations are provided below:

- Low Range % VMT Reduction (45 intersections per square mile) = (45 – 36) / 36 * 0.12 = 3.0%
- High Range % VMT Reduction (100 intersections per square mile) = (100 – 36) / 36 * 0.12 = 21.3%

Preferred Literature:

- -0.12 = elasticity of VMT with respect to design (intersection/street density)
- -0.12 = elasticity of VMT with respect to design (% of 4-way intersections)

Ewing and Cervero's [1] synthesis showed a strong relationship of VMT to design elements, second only to destination accessibility. The weighted average elasticity of VMT to intersection/street density was -0.12 (looking at six studies). The weighted average elasticity of VMT to percentage of 4-way intersections was -0.12 (looking at four studies, of which one controlled for self-selection[44]).

Alternative Literature:

Alternate:

- 2-19% reduction in VMT

[44] Self selection occurs when residents or employers that favor travel by non-auto modes choose locations where this type of travel is possible. They are therefore more inclined to take advantage of the available options than a typical resident or employee might otherwise be.

Growing Cooler [2] looked at various reports which studied the effect of site design on VMT, showing a range of 2-19% reduction in VMT. In each case, alternative development plans for the same site were compared to a baseline or trend plan. Results suggest that VMT and CO_2 per capita decline as site density increases as well as the mix of jobs, housing, and retail uses become more balanced. *Growing Cooler* notes that the limited number of studies, differences in assumptions and methodologies, and variability of results make it difficult to generalize.

Alternate:

- 3 – 17% shift in mode share from auto to non-auto

The Marshall and Garrick paper [3] analyzes the differences in mode shares for grid and non-grid ("tree") neighborhoods. For a city with a tributary tree street network, a neighborhood with a tree network had auto mode share of 92% while a neighborhood with a grid network had auto mode share of 89% (3% difference). For a city with a tributary radial street network, a tree neighborhood had auto mode share of 97% while a grid neighborhood had auto mode share of 84% (13% difference). For a city with a grid network, a tree neighborhood had auto mode share of 95% while a grid neighborhood had auto mode share of 78% (17% difference). The research is based on 24 California cities with populations between 30,000 and 100,000.

Alternative Literature References:

[2] Ewing, et al, 2008. Growing Cooler – The Evidence on Urban Development and Climate Change. Urban Land Institute.

[3] Marshall and Garrick, 2009. "The Effect of Street Network Design on Walking and Biking." Submitted to the 89th Annual Meeting of Transportation Research Board, January 2010. (Table 3)

Other Literature Reviewed:

None