Appendix L2 VMT Impact Analysis

Appendices

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August 30, 2021

Mr. Christian Santos
SRG Residential
3501 Jamboree Road, Suite 3000
Newport Beach, CA 92660

LLG Reference: 2.19.4127.1

Subject: **VMT Impact Analysis for the Laguna Niguel City Center Project**
Laguna Niguel, California

Dear Mr. Santos:

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the attached VMT Impact Analysis for the proposed Laguna Niguel City Center Project, prepared by our modeling sub-consultant, LSA. This updates our prior letter dated May 10, 2021 to address City staff comments.

The VMT Impact Analysis was conducted according to the City's *Transportation Assessment Guidelines* dated November 2020. The findings indicate that both the residential and non-residential components of the Project are expected to generate lower VMT rates than the established VMT significance thresholds under Year 2016 (Baseline) and Year 2045 (Cumulative) scenarios.

Pursuant to the City's Guidelines, citywide average VMT per capita and VMT per employee values are determined using the Baseline Year 2016 Orange County Transportation Analysis Model (OCTAM) modeling statistics. Based on this, Project VMT rates were estimated for the OCTAM Baseline Year 2016 scenario and compared with the corresponding Baseline Year 2016 significance criteria.

Under Baseline Year 2016 conditions, the Project VMT for residential and non-residential uses would be 37.40% and 15.79% less than significance thresholds, respectively. Based on application of the City's VMT significance criteria, development of the Project would not cause any significant VMT impacts in the Baseline scenario.

Because the Project requires a General Plan Amendment, a Year 2045 Cumulative VMT analysis was also conducted, which indicates that the Project VMT for residential and non-residential uses would be 38.96% and 12.86% less than significance thresholds. Based on the application the City's VMT significance criteria, the Project would not cause any significant VMT impacts in the long-term/Cumulative scenario.

It is reasonable to assume that the Project would result in a reduction in VMT compared to what the LSA report concluded based on the mixed-use, regionally connected, and locally-serving nature of the Project (i.e., providing more options for residents to live and work locally, and greater opportunities for Smart Growth that encourage diverse housing and transportation options that reduce VMT). For example, the majority of the commercial/non-residential portion of the Project consists of locally serving retail (i.e., serving City residents and employees who would otherwise travel farther away to regional/non-local destinations), the Project is of a mixed-use nature (i.e., creating synergy between various land use types that result in fewer and shorter vehicle trips), and the Project includes Complete Street/multimodal amenities that enhance mobility/regional connectivity with multimodal connections that extend local access to regional networks using alternative modes of travel, and active transportation (i.e., vehicle trips can potentially be replaced with walking, biking, and use of public transportation).

We appreciate the opportunity to provide this updated VMT analysis. If you have any questions regarding this letter, please do not hesitate to call us at (949) 825-6175.

Sincerely,
Linscott, Law & Greenspan, Engineers

Trissa (de Jesus) Allen, P.E.
Senior Transportation Engineer

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MEMORANDUM

DATE: August 30, 2021

TO: Trissa de Jesus Allen, P.E.

FROM: Ambarish Mukherjee, P.E., AICP

SUBJECT: Laguna Niguel Town Center Vehicle Miles Traveled Analysis

Linscott, Law & Greenspan, Engineers (LLG) is under contract to prepare a traffic impact analysis (TIA) for the proposed Laguna Niguel Town Center project in the City of Laguna Niguel (City), to evaluate the traffic impacts of the proposed project. The proposed project proposes demolition of some existing structures within the project site and constructions of 275 apartments, 60,597 square feet (SF) of office, 20,854 SF medical office, 34,340 SF retail, 17,355 SF Fast-Casual Restaurant, 8,650 SF Quality Restaurant and 16,765 SF High-Turnover Sit-sown restaurant. As part of the project the existing 14,000 SF library will also be moved to a different location within the site, replaced with a larger 16,290 SF library. Laguna Niguel City Hall and Orange County Fire Authority (OCFA) Station 5 adjoin the project site, but are not part of the project. As part of the TIA, LSA has prepared this VMT analysis for the project.

BACKGROUND

On December 28, 2018, regulatory changes to the California Environmental Quality Act (CEQA) guidelines were approved. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT). The new guidelines became mandatory on July 1, 2020, and the City adopted guidelines to implement VMT methodology and procedures in November 2020. This VMT analysis has been prepared consistent with the CEQA guidelines using the methodology and procedures from the *City of Laguna Niguel Transportation Assessment Guidelines*, November 2020 Draft (TA Guidelines). Following is a detailed description of the VMT analysis.

METHODOLOGY

The TA Guidelines states that projects do not require any further VMT analysis if it meets at least one of the following VMT screening criteria for land use projects:

- Small Projects
- Redevelopment Projects
- Projects Located in a Low VMT Area
- Projects Located in Transit Priority Areas

- Locally Serving Land Use Projects
- Affordable Housing Projects

The project is not located within a low VMT area or a Transit Priority Area, based on Figure 2-Laguna Niguel LOW VMT Areas and Transit Priority Area of the City's TA Guidelines. The project is neither an affordable housing project, nor it could be classified as a redevelopment project since it proposes construction of new developments along with replacing the existing library facility. Majority of the project land uses do not fall under the locally serving land uses listed in the TA guidelines, and in entirety, the project exceeds the threshold of 50,000 SF screening criteria for mixed use projects. Thus, the project could not be screened out as a locally serving land use project. Also, since the project's estimated daily trip generation is greater than 500, it does not meet the screening criteria for Small Projects. Therefore, the project could not be screened out of VMT analysis. As such, pursuant to the TA Guidelines, a detailed VMT analysis was conducted to assess the project's VMT impact.

Thresholds of Significance

The project is of mixed-use category including residential, office and retail/commercial components. The City's TA Guidelines establish different thresholds based on a project's land use category. For mixed use projects, the following threshold applies:

> *"Mixed-use projects: Both the residential and non-residential components of the project would be analyzed separately, however, VMT reduction benefits due to internally captured trips and potentially other considerations that reduce VMT could be accounted for in the analysis."*

Therefore, the Project's residential and non-residential components are analyzed separately below under the following thresholds for residential and non-residential projects:

> *"Residential projects: A significant transportation impact occurs if the project's home-based VMT per capita exceeds the base year citywide average VMT per capita."*
>
> *"Non-residential projects: A significant transportation impact occurs if the project's employment VMT per employee exceeds the base year citywide average VMT per employee."*

Additionally, the TA states the following:

> *"The citywide average VMT per capita and VMT per employee values are determined using the base year OCTAM modeling statistics. Ensuring land use development projects reduce VMT rates to be at or below the current base year citywide average will result in an overall decrease in citywide VMT and GHG emissions."*

Pursuant to the TA Guidelines, citywide average VMT per capita and VMT per employee values are determined using the base year (2016) Orange County Transportation Analysis Model (OCTAM) modeling statistics. Therefore, project VMT rates were also estimated for the OCTAM base year (2016) scenario and compared with the corresponding base year (2016) significance criteria.

OCTAM has been used to estimate the project VMT. OCTAM socioeconomic database for both base (2016) and future (2045) scenario were updated with the project land uses to calculate project VMT. The project VMT was calculated from the OCTAM model runs as described below:

Project Traffic Analysis Zone Update

The first step in preparation of this analysis was to update the traffic analysis zones (TAZs) in the model that includes the project area. LSA converted the project's land uses into model socioeconomic categories. OCTAM socioeconomic database for both base (2016) and future (2045) scenarios were updated with the project's land uses to calculate project VMT.

Given the inability to perform zone splits in the current version of the OCTAM model, LSA modified the socioeconomic data for the project location TAZ to isolate the project from all other uses within the project zone. Non-project related land uses for the project location TAZ were moved to the adjacent TAZs and the project's socioeconomic data was added in the project location TAZ. As such, multiple TAZs have been used for the project. These TAZs were updated with the socioeconomic data developed for the proposed residential and non-residential land uses.

For the residential use, a TAZ within the City near project area with multi-family was chosen to estimate project population given the type of project, instead of using a City-wide average. This is because the type of residential unit and its geographic location in the City can influence household characteristics and its VMT. This approach also helps to maintain consistency with the model in terms of persons per unit.

For the non-residential uses, land use areas were converted to employments. SF to employee conversion factor were estimated from Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. Daily Trip rates per employee were divided by daily trip rates per 1,000 SF to estimate the ratio between land use square footage and number of employees.

Detailed socioeconomic data calculation worksheet is included in Appendix A.

Model Runs and Project VMT Calculation

Model runs were conducted for this updated model after incorporating the project land uses as described above. Production/Attraction (P-A) methods were used as recommended in the Guidelines. Following is a step-by step discussion of the project's VMT calculation:

1. The length of project trips traveled on the roadway network is contained in the model skim matrices.
2. The City's TA Guidelines recommends the following, "*In order to develop the VMT component of the metrics, travel demand model outputs by trip purpose and productions and attractions must be considered. The delineation of productions and attractions include both ends of an origin and destination trip*."

   Project trips by trip type/trip purpose are contained by TAZ in the model output matrices (mode choice outputs in production/attraction format). Origin-destination matrices are outputs from a downstream step of the model (after mode choice) and doesn't carry the trip purpose information or directionality. Therefore, based on the recommended

methodology of the City's TA Guidelines, production-attraction matrices were used as suggested in the TA.

3. As an example, development of residential (HB) VMT for the project (Appendix B) included VMT from production end of trips for all homebased trip purposes. This methodology is consistent with the methodology used to develop Table 5 in the City's TA Guidelines.
4. As VMT was developed by trip purpose and production/attraction end of the trips, no select zone analysis was conducted.

As stated above, project-generated VMT was extracted from the OCTAM model runs using the production-attraction trip matrix and by multiplying the matrix by the final assignment skims. Total homebased production VMT was extracted for the residential component of the project, and homebased work attraction VMT was extracted for the non-residential component of the project. For the residential component, total Homebased Production VMT was divided by the estimated project population to develop the residential component's VMT per capita. For the non-residential component, the extracted homebased work VMT was divided by estimated project employment to develop the non-residential component VMT per employee.

VMT ANALYSIS

As stated in the TA Guidelines, the project's residential and non-residential components were analyzed separately with their corresponding significance thresholds to identify whether any of the project components would have a significant VMT impact.

Table A shows the project's residential and non-residential VMT from the base year (2016) model run and corresponding City thresholds. The thresholds were obtained from the City's TA Guidelines. As shown in Table A, both the residential and non-residential components of the project are estimated to generate a much lower rate of VMT than the significant threshold. Therefore, the project will not have any significant VMT impact.

Detailed VMT development calculations are included in Appendix B.

Table A: Project VMT and Corresponding City Thresholds

Project Component	Significance Threshold	Project VMT	Percentage Difference
Residential	24.9	15.6	-37.40%
Non-Residential	24.0	20.2	-15.79%

Source: Orange County Transportation Analysis Model (OCTAM)
VMT = vehicle miles traveled

The TA Guidelines allow for VMT analyses to account for reductions in VMT due to internally captured trips for mixed-use projects. The analysis above does not account for internally captured trips, which would further reduce VMT, and is therefore conservative.

CUMULATIVE VMT ANALYSIS

A cumulative VMT analysis was performed to assess the project's VMT performance under cumulative scenario (Year 2045). Table B shows the project's residential and non-residential VMT under the cumulative scenario. As shown in Table B, the project will not have any significant impact under the cumulative scenario.

Table B: Cumulative Scenario Project VMT and City Thresholds

Project Component	Significance Threshold	Project VMT	Percentage Difference
Residential	24.9	15.2	-38.96%
Non-Residential	24.0	20.9	-12.86%

Source: Orange County Transportation Analysis Model (OCTAM)
VMT = vehicle miles traveled

Detailed VMT development calculations are included in Appendix B

CONCLUSION

Based on the significance threshold criteria determined within the TA guidelines, the project will not have any significant impact under either base (2016) or cumulative (2045) scenario. Additionally, the project's VMT per capita is forecast to have a nominal reduction (2.56%) from base (2016) to cumulative (2045) scenario. The project's VMT per employee is forecast to have a nominal increase (3.47%) from base (2016) to cumulative (2045) scenario. Overall, the project's VMT profile will be similar under both base (2016) and cumulative (2045) scenarios. This can be attributed to the regional growth forecasts within the City and Orange County.

The TA Guidelines' *Appendix A: Technical Memorandum of Facts, Reasonable Assumptions and Expert Opinions* (TA Appendix Memorandum), Table 6 – Existing Conditions City of Laguna Niguel VMT Characteristics, and Table 7 – Year 2045 Forecasts Conditions City of Laguna Niguel VMT Characteristics demonstrates the growth projections within the City and the County. As shown in these tables, the City population is estimated to increase by 2% between 2016 and 2045, while the citywide employment number is estimated to increase by 11% within the same timeframe. Additionally, as shown in tables 6 and 7 of the TA Appendix Memorandum, the VMT per capita for the City is forecast to remain the same between base (2016) and cumulative (2045) scenario, while VMT per employee for the City is forecast to increase by 4.16% between the base (2016) and cumulative (2045) conditions. Therefore, for a negligible growth in population there will additional destination choices available within the City. As such, the project's nominal decrease in VMT per capita reflects that residents will have to travel less due to additional destination choices available under cumulative (2045) scenario. On the contrary, due to greater increase in employment (compared to population increase), there will limited choices for these employees to reside within the City. Therefore, some employment trips will be longer, travelling from beyond City limits under cumulative (2045) conditions compared to base (2016) conditions. As a result, the VMT per employee is forecast to have a nominal increase from base (2016) to cumulative (2045) scenario.

Attachment:

Appendix A – Socioeconomic Data Development Worksheet
Appendix B – VMT Calculation Worksheet

APPENDIX A: SOCIOECONOMIC DATA DEVELOPMENT WORKSHEET

LSA

Appendix A - Land Uses to Socioeconomic Data Conversion - Laguna Niguel Town Center

Notes.	Land Uses	Area in Square feet	Conversion Factor (SF/Employee)	Employment	OCTAM EMP Type	OCTAM TAZ
[1]	General Office Building	60,597	340	178	SVC_EMP	NON-RES
[2]	Medical Dental Office Building	20,854	250	83	SVC_EMP	NON-RES
[3]	Shopping Center	34,340	430	80	RET_EMP	NON-RES
[4]	Fast Casual Restaurant	17,355	190	91	RET_EMP	NON-RES
[5]	Quality Restaurant	8,650	190	46	RET_EMP	NON-RES
[6]	High Turnover Sit Down Restaurant	16,765	190	88	RET_EMP	NON-RES
			Total Employment	**566**		

Proposed Project SED for Select Zone TAZs

Zone	TOT_HH	TOT_POP	RET_EMP	SVC_EMP
NON-RES			305	261
RES[7]	275	572	0	0

Notes:

[1] Square feet to employee conversion factor were estimated from Institute of Transportation Engineers (ITE) *Trip Generation Manual* , 10th Edition, for Land Use 710, "General Office Building". Daily Trip rates per employee were divided by daily trip rates per 1,000 square feet to estimate the ratio between land use square footage and number of employees.

[2] Square feet to employee conversion factor were estimated from ITE *Trip Generation Manua* l, 10th Edition, for Land Use 720, "Medical-Dental Office Building". Daily Trip rates per employee were divided by daily trip rates per 1,000 square feet to estimate the ratio between land use square footage and number of employees.

[3] Square feet to employee conversion factor were estimated from ITE *Trip Generation Manual* , 10th Edition, for Land Use 820, "Shopping Center". Daily Trip rates per employee were divided by daily trip rates per 1,000 square feet to estimate the ratio between land use square footage and number of employees.

[4] Square feet to employee conversion factor were estimated from ITE *Trip Generation Manual* , 10th Edition, for Land Use 930, "Fast Casual Restaurant". Daily Trip rates per employee were divided by daily trip rates per 1,000 square feet to estimate the ratio between land use square footage and number of employees. Since the daily trip rate per employee were not available for this land use, daily trip rate for land use 932 "High Turnover Sit Down Restaurant" were used for this estimation.

[5] Square feet to employee conversion factor were estimated from ITE *Trip Generation Manual* , 10th Edition, for Land Use 931, "Quality Restaurant". Daily Trip rates per employee were divided by daily trip rates per 1,000 square feet to estimate the ratio between land use square footage and number of employees. Since the daily trip rate per employee were not available for this land use, daily trip rate for land use 932 "High Turnover Sit Down Restaurant" were used for this

[6] Square feet to employee conversion factor were estimated from ITE *Trip Generation Manual* , 10th Edition, for Land Use 820, "Shopping Center". Daily Trip rates per employee were divided by daily trip rates per 1,000 square feet to estimate the ratio between land use square footage and number of employees.

[7] Population estimate for the project were estimated using population per household factor from a nearby TAZ for multifamily dwelling units.

APPENDIX B:

VMT Calculation Worksheet

LSA

Laguna Niguel Town Center

VMT Calculation Worksheet

2016	Laguna Niguel Town Center (Project)	City of Laguna Niguel *
Households	275	
Population	572	
Total Employment	566	
Residential - Total Homebased (HB) VMT	8,915	
Non-Residential - Homebased Work (HBW) VMT	11,439	
Residential - HB VMT per capita	15.6	24.9
Non-Residential - HBW VMT per employee	20.2	24.0

2045	Laguna Niguel Town Center (Project)	City of Laguna Niguel *
Households	275	
Population	572	
Total Employment	566	
Residential - Total Homebased (HB) VMT	8,694	
Non-Residential - Homebased Work (HBW) VMT	11,837	
Residential - HB VMT per capita	15.2	24.9
Non-Residential - HBW VMT per employee	20.9	24.0

** Source: City of Laugna Niguel Draft Transportation Assessment Guidelines, November 2020. Appendix A: Technical Memorandum of Facts, Reasonable Assumptions and Expert Opinions, Table 1 - OCTAM VMT and Socioeconomic data*