APPENDIX I

TRANSPORTATION ANALYSIS AND LOS WORKSHEETS

CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: January 9, 2025

TO: Cesar Orozco, City of Vallejo

FROM: Arthur Black, Principal

SUBJECT: Transportation Analysis for the Vista Cove Project (LSA Project No. 20241845)

LSA reviewed the proposed construction of 51 single family residential dwelling units at the northeast corner of Shady Lane and Wildflower Street (Vista Cove Project or proposed project) to determine if the project would conflict with or create inconsistency with California Environmental Quality Act (CEQA) Guidelines Section 15064.3, subdivision (b), as required. This memorandum provides supporting evidence that the project would be consistent with the State's priorities of reducing greenhouse gas (GHG) emissions and encouraging housing development, which is the intent of Senate Bill (SB) 743.

The project would be located south of Interstate 780 (I-780) on the southeast border of Vallejo, California. Residential land uses are west and south of the project site. The project site is currently vacant land immediately adjacent to an existing residential neighborhood.

PROJECT TRIP GENERATION

As stated previously, the Vista Cove project would construct 51 single-family homes. The Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (2021) provides trip generation rates for this land use. These trip rates are based on data collected at more than 150 single-family residential communities between the 1980s and 2010s, which were pre-pandemic and prior to the rise in prevalence of remote work. As such, these trip rates may be higher than current residential trip production, and are therefore a conservative approach. Table A summarizes the projected project trip generation for the proposed project. As Table A indicates, the proposed project is anticipated to generate 481 new daily trips.

Table A: Trip Generation

Land Use (ITE Land Use Code)	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates[1]									
Single-Family Detached Housing (210)		DU	9.43	0.17	0.53	0.70	0.59	0.35	0.94
Proposed Project Trip Generation									
Proposed Project	51	DU	481	9	26	35	30	18	48
Total Trip Generation			**481**	**9**	**26**	**35**	**30**	**18**	**48**

[1] Trip rates based on the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 11th Edition (2021).
ADT = average daily traffic
DU = dwelling unit

ANALYSIS THRESHOLD

The State revised its *State CEQA Guidelines* in January 2019. Among the revisions, vehicle delay and level of service analysis have been removed from consideration under CEQA consistent with SB 743. The current *State CEQA Guidelines* prescribe the evaluation of transportation impacts on a project's effect on vehicle miles traveled (VMT). At the time of this revision, a deadline of July 1, 2020 was established for jurisdictions to adopt thresholds for evaluation of transportation impacts according to VMT. Staff at the City of Vallejo (City) prepared draft *CEQA Transportation Impact Analysis Guidelines* in July 2020, which were revised in October 2020; however, they have not been formally adopted. Prior to the revised *State CEQA Guidelines,* the City adopted the *City of Vallejo Traffic Impact Analysis/Study Guidelines*, which established that small projects that would add fewer than 500 daily two-way trips or 100 peak period two-way trips were below the threshold for requiring transportation analysis.

State CEQA Guidelines Section 15064.7(c) states:

> When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency is supported by substantial evidence.

In addition, Solano County has also not adopted guidelines regarding VMT or thresholds of significance. In the absence of formally adopted thresholds the City, as the lead agency, may consider a threshold of significance supported by substantial evidence.

Simultaneous with clearance of the revised *State CEQA Guidelines*, the Governor's Office of Planning and Research (OPR), now known as Governor's Office of Land Use and Climate Innovation (LCI) released the *Technical Advisory for Evaluating Transportation Impacts under CEQA*, December 2018 (Technical Advisory). The Technical Advisory states that the document's purpose is "to provide advice and recommendations, which agencies and other entities may use at their discretion." The Technical Advisory goes on to state that it "does not alter lead agency discretion in preparing environmental documents subject to CEQA" and "should not be construed as legal advice."

The Technical Advisory suggests that small projects generating fewer than 110 trips per day, residential and office projects in VMT efficient areas, projects near high-quality transit, affordable residential development, and local-serving retail uses may be presumed to have a less than significant impact on VMT. As shown in Table A, the project would generate more than 110 trips per day. While the Technical Advisory recommends a threshold of 110 trips per day for a small project this recommendation is not relevant to the original intent of modifications to the *State CEQA Guidelines*, which was to reduce GHG emissions. In addition, the recommendation is not specific to residential development as it solely references office development (see footnote 19 of the Technical Advisory).

The State has prioritizes the reduction of GHG emissions while also encourages housing development. To this end, Section 1(b)(2) of SB 743 identifies that support of infill development was an intent of the Legislature when passing SB 743. This memorandum provides analysis and evidence demonstrating that the recommended 110-daily-trip threshold is not appropriate to meet the State's simultaneous priorities of reducing GHG emissions and encouraging housing development or the intent of the Legislature when passing SB 743 to support infill development. Infill development is generally situated within existing city boundaries and is surrounded by urban development. The project site is located within the existing city boundary, is adjacent to an existing residential neighborhood and interstate highway with additional urban development located north, south, and east of the project site beyond the interstate highway.

SMALL PROJECT EFFECT ON GHG EMISSIONS

One of the stated goals of SB 743 is to reduce GHG emissions. The California Emissions Estimator Model (CalEEMod) is provided by the California Air Resources Board to be used Statewide for developing project-level GHG emissions. LSA used results from this model to correlate the effect of changes in residential project-related daily trips to the resulting GHG emissions. CalEEMod was used with built-in default trip lengths and types to show the vehicular GHG emissions from incremental amounts of daily trips. Table B shows the resulting annual VMT and GHG emissions from the incremental daily trips.

Table B: Representative VMT and GHG Emissions from CalEEMod

Daily Trips	Annual Vehicle Miles Traveled (VMT)	GHG Emissions (Metric Tons CO2e per year)
200	683,430	258
300	1,021,812	386
400	1,386,416	514
500	1.703,020	643
600	2,043,623	771

Source: CalEEMod version 2016.3.2.
CalEEMod = California Emissions Estimator Model
CO_2e = carbon dioxide equivalent
GHG = greenhouse gas

A common GHG emission threshold is 3,000 metric tons (MT) of carbon dioxide equivalent (CO_2e) per year. The vehicle emissions are typically more than 50 percent of the total project GHG

emissions, the other 50 percent coming from on-site and project-related activities (e.g., electricity generation). Thus, a project with 500 daily trips (i.e., the City's pre-existing screening threshold for transportation analysis) would generally have total project emissions that could be less than 1,300 MT CO_2e/year (i.e., 50 percent or 643 MT CO_2e/year coming from vehicle emissions and the other 50 percent coming from other project activities). As this level of GHG emissions would be less than 3,000 MT CO_2e/year, the emissions of GHG from a project up to 500 ADT would typically be less than significant.

The CalEEMod analysis described above is consistent with guidance from the Bay Area Air Quality Management District (BAAQMD). BAAQMD provides guidelines for jurisdictions in the Bay Area (such as Vallejo) in regard to analysis, mitigation, and management of air pollutant and GHG under CEQA. Table 4-4 of the *California Environmental Quality Act Air Quality Guidelines* (BAAQMD, 2022) provides screening levels for single land use projects. These guidelines state that up to 421 single family homes would be appropriately screened from analysis as they would operate below the GHG emissions thresholds. The project proposes about 12 percent of the 421 single family homes that would be presumed to have a less than significant impact on GHG according to BAAQMD guidelines. If a residential project producing fewer than 500 daily trips produces fewer GHG emissions according to CalEEMod than the emissions threshold and is below the screening threshold of the BAAQMD guidelines and one of the stated goals of the VMT enabling legislation is to reduce GHG emissions, then the City's pre-existing threshold of 500 daily trips is still valid to determine when small projects would have a less than significant impact on transportation.

PROJECT SIGNIFICANCE

The Vista Cove project is immediately adjacent to an existing residential neighborhood and would construct 51 dwelling units extending that existing residential neighborhood within the city limits of Vallejo. Section 1(b)(2) of SB 743 identifies that support of infill development was an intent of the Legislature when passing SB 743. Another stated goal is to reduce GHG emissions. CEQA allows a lead agency discretion to use a threshold supported by substantial evidence. Given that the proposed project's 51 dwelling units is below the 421 dwelling unit screening level identified by BAAQMD and the 481 daily trips would produce GHG emissions at a level below a common threshold of significance, the City could apply these findings as substantial evidence for a determination of less than significant.

The proposed project extends existing residential development and would have a less than significant impact on GHG emissions because it is a small project, and as such would not conflict or be inconsistent with *State CEQA Guidelines* section 15064.3, subdivision (b).

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	138	862	29	127	569
Future Volume (veh/h)	19	138	862	29	127	569
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	166	1039	35	153	686
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	253	225	1387	47	200	2220
Arrive On Green	0.14	0.14	0.40	0.40	0.11	0.62
Sat Flow, veh/h	1781	1585	3601	118	1781	3647
Grp Volume(v), veh/h	23	166	526	548	153	686
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1849	1781	1777
Q Serve(g_s), s	0.4	3.9	9.8	9.8	3.2	3.5
Cycle Q Clear(g_c), s	0.4	3.9	9.8	9.8	3.2	3.5
Prop In Lane	1.00	1.00		0.06	1.00	
Lane Grp Cap(c), veh/h	253	225	703	731	200	2220
V/C Ratio(X)	0.09	0.74	0.75	0.75	0.76	0.31
Avail Cap(c_a), veh/h	831	740	829	863	485	3040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	15.9	10.0	10.0	16.6	3.4
Incr Delay (d2), s/veh	0.2	4.7	3.2	3.1	5.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	3.3	3.4	1.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.5	20.5	13.2	13.1	22.6	3.4
LnGrp LOS	B	C	B	B	C	A
Approach Vol, veh/h	189		1074			839
Approach Delay, s/veh	19.8		13.1			6.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	8.8	19.8				28.6	10.0
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0				33.0	18.0
Max Q Clear Time (g_c+I1), s	5.2	11.8				5.5	5.9
Green Ext Time (p_c), s	0.2	3.4				5.2	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	11.3
HCM 7th LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	79	209	589	57	273	774
Future Volume (veh/h)	79	209	589	57	273	774
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	222	627	61	290	823
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	341	303	934	91	357	2110
Arrive On Green	0.19	0.19	0.29	0.29	0.20	0.59
Sat Flow, veh/h	1781	1585	3366	318	1781	3647
Grp Volume(v), veh/h	84	222	340	348	290	823
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1813	1781	1777
Q Serve(g_s), s	1.7	5.5	7.1	7.1	6.5	5.1
Cycle Q Clear(g_c), s	1.7	5.5	7.1	7.1	6.5	5.1
Prop In Lane	1.00	1.00		0.18	1.00	
Lane Grp Cap(c), veh/h	341	303	507	518	357	2110
V/C Ratio(X)	0.25	0.73	0.67	0.67	0.81	0.39
Avail Cap(c_a), veh/h	766	682	764	780	447	2802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	15.9	13.2	13.2	16.0	4.5
Incr Delay (d2), s/veh	0.4	3.4	1.5	1.5	8.8	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.0	2.5	2.5	3.1	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.7	19.3	14.8	14.7	24.8	4.6
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	306		688			1113
Approach Delay, s/veh	18.1		14.7			9.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.9	16.4				29.3	12.5
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0				33.0	18.0
Max Q Clear Time (g_c+I1), s	8.5	9.1				7.1	7.5
Green Ext Time (p_c), s	0.2	2.8				6.4	0.7

Intersection Summary		
HCM 7th Control Delay, s/veh		12.7
HCM 7th LOS		B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	160	862	30	135	569
Future Volume (veh/h)	23	160	862	30	135	569
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	193	1039	36	163	686
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	291	259	1349	47	213	2187
Arrive On Green	0.16	0.16	0.39	0.39	0.12	0.62
Sat Flow, veh/h	1781	1585	3597	121	1781	3647
Grp Volume(v), veh/h	28	193	527	548	163	686
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1849	1781	1777
Q Serve(g_s), s	0.5	4.7	10.5	10.5	3.6	3.7
Cycle Q Clear(g_c), s	0.5	4.7	10.5	10.5	3.6	3.7
Prop In Lane	1.00	1.00		0.07	1.00	
Lane Grp Cap(c), veh/h	291	259	684	712	213	2187
V/C Ratio(X)	0.10	0.75	0.77	0.77	0.77	0.31
Avail Cap(c_a), veh/h	789	702	787	818	460	2885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	16.2	10.9	10.9	17.3	3.7
Incr Delay (d2), s/veh	0.1	4.3	4.1	3.9	5.6	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	3.8	3.9	1.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.6	20.5	15.0	14.9	23.0	3.8
LnGrp LOS	B	C	B	B	C	A
Approach Vol, veh/h	221		1075			849
Approach Delay, s/veh	19.7		14.9			7.5
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.4	20.2				29.5	11.1
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0				33.0	18.0
Max Q Clear Time (g_c+I1), s	5.6	12.5				5.7	6.7
Green Ext Time (p_c), s	0.2	3.1				5.2	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	12.5
HCM 7th LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	82	224	589	62	299	774
Future Volume (veh/h)	82	224	589	62	299	774
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	238	627	66	318	823
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	356	317	910	96	381	2119
Arrive On Green	0.20	0.20	0.28	0.28	0.21	0.60
Sat Flow, veh/h	1781	1585	3338	341	1781	3647
Grp Volume(v), veh/h	87	238	343	350	318	823
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1809	1781	1777
Q Serve(g_s), s	1.8	6.2	7.6	7.6	7.5	5.4
Cycle Q Clear(g_c), s	1.8	6.2	7.6	7.6	7.5	5.4
Prop In Lane	1.00	1.00		0.19	1.00	
Lane Grp Cap(c), veh/h	356	317	498	507	381	2119
V/C Ratio(X)	0.24	0.75	0.69	0.69	0.83	0.39
Avail Cap(c_a), veh/h	726	646	724	737	423	2654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	16.6	14.2	14.2	16.6	4.7
Incr Delay (d2), s/veh	0.4	3.6	1.7	1.7	12.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	2.8	2.8	3.9	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	15.2	20.2	15.9	15.9	29.0	4.8
LnGrp LOS	B	C	B	B	C	A
Approach Vol, veh/h	325		693			1141
Approach Delay, s/veh	18.9		15.9			11.5
Approach LOS	B		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.0	16.9				30.9	13.3
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0				33.0	18.0
Max Q Clear Time (g_c+I1), s	9.5	9.6				7.4	8.2
Green Ext Time (p_c), s	0.1	2.8				6.3	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	14.0
HCM 7th LOS	B

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