memorandum

DATE:	January 4, 2021
TO:	John Kerenyi, Traffic Engineer, City of Moreno Valley
FROM:	Sandipan Bhattacharjee, P.E., T.E., AICP, ENV-SP
SUBJECT:	Moreno Valley Trade Center Trip Generation Comparison (E-Commerce Scenario)

Translutions, Inc. (Translutions) is pleased to provide this memorandum discussing the trip generation included in the Moreno Valley Trade Center Traffic Impact Analysis (TIA) and the proposed trip generation that includes High-Cube Cold Storage warehouse facilities and E-Commerce facilities.

Background. On June 12, 2020, Translutions submitted a TIA for the Moreno Valley Trade Center project in the City of Moreno Valley. The project included the construction of approximately 1,332,380 square feet of E-Commerce warehouse uses. The project's site plan has been revised since the TIA and now includes 1,328,853 square feet, of which, approximately 50,000 square feet of the project is being proposed as High-Cube Cold Storage facilities. The project will now include 50,000 square feet of High-Cube Cold Storage facilities and 1,278,853 square feet of E-Commerce facilities. It should be noted that the TIA was based on the first version of the site plan, that had a larger building area (1,332,380 square feet), to provide a conservative, worst-case analysis. Therefore, this trip generation comparison will include a comparison of the original trip generation from the TIA to the proposed trip generation including the High-Cube Cold Storage facilities.

Proposed Project. The proposed project consists of 50,000 square feet of High-Cube Cold Storage warehouse facilities and 1,278,853 square feet of E-Commerce facilities. The trip generation for the proposed project is based on trip generation rates for Land Use 157 "High-Cube Cold Storage Warehouse" from Institute of Transportation Engineers' (ITE) Trip Generation (10th Edition) and E-Commerce rates from the original TIA developed from surveys of existing sites. Table A summarizes the proposed project trip generation for the E-Commerce facilities. Table B shows the trip generation for the proposed High-Cube Cold Storage facilities. Table C summarizes the project trip generation for both the E-Commerce and High-Cube Cold Storage facilities. As shown in Table C, the total project trip generation for the E-Commerce and High-Cube Cold Storage facilities is forecast to generate 544 PCE trips in the a.m. peak hour, 1,087 PCE trips in the p.m. peak hour and 7,785 daily PCE trips.

Trip Generation from Original TIA. As stated earlier, the TIA for the original project was submitted to the City in June 2020. The trip generation used for the analysis was based on surveyed rated from similar E-Commerce facilities in the Inland Empire. Table D shows the project trip generation from the approved TIA. As shown in Table D, the approved project is forecast to generate 554 PCE trips in the a.m. peak hour, 1,118 PCE trips in the p.m. peak hour, and 7,903 PCE daily trips.

Trip Generation Comparison. The proposed warehouse that includes the High-Cube Cold Storage warehouse and E-Commerce facilities will generate 10 fewer total PCE trips during the a.m. peak hour, 31 fewer total PCE trips during the p.m. peak hour, and 118 fewer daily total PCE trips, when compared to the original trip generation in the TIA.

Conclusion. Since the trip generation of the proposed project during the a.m. peak hour, p.m. peak hour, and daily are lower than those disclosed in the TIA submitted in June 2020, the impacts from the proposed project are anticipated to be less than those disclosed in the TIA and addressed in the prior CEQA analyses.

Table A - Project Trip Generation (E-Commerce Warehouse)

Land Use		Units	Peak Hour						Daily
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Total Vehicle Rates									
Total Vehicle Rates									
Trip Generation Rates[1]	1,282.38	TSF	0.2910	0.0717	0.3673	0.4087	0.3883	0.7970	4.9591
Trip Generation			373	92	471	524	498	1022	6,359
Passenger Car Equivalent Rates Calculations									
Passenger Cars									
Trip Generation Rates[1]	1,282.38	TSF	0.2800	0.0592	0.3392	0.3998	0.3733	0.7731	4.3155
Trip Generation			359	76	435	513	479	991	5,534
PCE Factor[2]			1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCEs			359	76	435	513	479	991	5,534
2-Axle Trucks									
Trip Generation Rates[1]			0.0009	0.0009	0.0019	0.0002	0.0010	0.0011	0.1329
Trip Generation			1	1	2	0	1	1	170
PCE Factor[2]			1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCEs			2	2	3	0	2	2	255
3-Axle Trucks									
Trip Generation Rates[1]			0.0027	0.0030	0.0057	0.0013	0.0025	0.0038	0.1149
Trip Generation			3	4	7	2	3	5	147
PCE Factor[2]			2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCEs			6	8	14	4	6	10	294
4-Axle Trucks									
Trip Generation Rates[1]			0.0074	0.0085	0.0205	0.0074	0.0116	0.0190	0.3957
Trip Generation			9	11	26	10	15	24	507
PCE Factor[2]			3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCEs			27	33	78	30	45	72	1,521
Total Project Trip Generation (Trips, By Vehicle Type)									
Warehouse	1,282.38	TSF							
Passenger Cars			359	76	435	513	479	991	5,534
2-Axle Trucks			1	1	2	0	1	1	170
3-Axle Trucks			3	4	7	2	3	5	147
4+ Axle Trucks			9	11	26	10	15	24	507
All Trucks			13	16	35	12	19	30	824
Total Vehicles			372	92	470	525	498	1,021	6,358
Total Project Trip Generation (Passenger Car Eqivalent Trips, By Vehicle Type)									
Passenger Cars			359	76	435	513	479	991	5,534
Truck PCE									
2-Axle Trucks			2	2	3	0	2	2	255
3-Axle Trucks			6	8	14	4	6	10	294
4+ Axle Trucks			27	33	78	30	45	72	1,521
Total Truck PCE			35	43	95	34	53	84	2,070
Total PCE			394	119	530	547	532	1,075	7,604

[1] Trips based on Surveys and application to Proposed Project.

[2] Recommended PCE Factor per SBCTA Guidelines

Table B: Project Trip Generation (High-Cube Cold Storage Warehouse)

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Total Vehicle Rates								
Trip Generation Rates[1]	TSF	0.085	0.025	0.110	0.034	0.086	0.120	2.120
PCE Inbound/Outbound Splits		77%	23%	100%	28%	72%	100%	50%/50%
Passenger Car Equivalent Rates Calculations								
Passenger Cars								
Recommended Mix (%)[2]		55.82%	55.82%	55.82%	55.82%	55.82%	55.82%	55.82%
PCE Factor[3]		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.047	0.014	0.061	0.019	0.048	0.067	1.183
2-Axle Trucks								
Recommended Mix (%)[2]		7.48%	7.48%	7.48%	7.48%	7.48%	7.48%	7.48%
PCE Factor[3]		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.010	0.003	0.012	0.004	0.010	0.013	0.238
3-Axle Trucks								
Recommended Mix (%)[2]		10.03%	10.03%	10.03%	10.03%	10.03%	10.03%	10.03%
PCE Factor[3]		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.017	0.005	0.022	0.007	0.017	0.024	0.425
4-Axle Trucks								
Recommended Mix (%)[2]		26.66%	26.66%	26.66%	26.66%	26.66%	26.66%	26.66%
PCE Factor[3]		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.068	0.020	0.088	0.027	0.069	0.096	1.696
Warehouse Net PCE Rate		**0.142**	**0.042**	**0.184**	**0.056**	**0.144**	**0.200**	**3.542**
Total Project Trip Generation (Trips, By Vehicle Type)								
Warehouse 50.00 TSF								
Passenger Cars		3	1	4	2	2	4	60
2-Axle Trucks		1	0	1	1	0	1	8
3-Axle Trucks		1	0	1	1	0	1	11
4+ Axle Trucks		2	0	2	1	1	2	29
All Trucks		4	0	4	3	1	4	48
Total Vehicles		7	1	8	5	3	8	108
Total Project Trip Generation (Passenger Car Eqivalent Trips, By Vehicle Type)								
Passenger Cars		3	1	4	2	2	4	60
Truck PCE								
2-Axle Trucks		2	0	2	2	0	2	12
3-Axle Trucks		2	0	2	2	0	2	22
4+ Axle Trucks		6	0	6	3	3	6	87
Total Truck PCE		10	0	10	7	3	10	121
Total PCE		13	1	14	9	5	14	181

[1] Rates based on Land Use 157 "High-Cube Cold Storage Warehouse" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

[2] Recommended Truck Mix Percentages per SCAQMD Truck Trip Generation Study for Cold Storage.

[3] Recommended PCE Factor per SBCTA Guidelines

Table C - Total Project Trip Generation Summary

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Passenger Cars		361	77	439	515	481	993	5,594
Truck PCE								
2-Axle Trucks		4	2	5	2	2	4	267
3-Axle Trucks		8	8	16	6	6	12	316
4+ Axle Trucks		33	33	84	33	48	78	1,608
Total Truck PCE		45	43	105	41	56	94	2,191
Total PCE		406	120	544	556	537	1,087	7,785

Table D - Project Trip Generation From TIA

Land Use		Units	Peak Hour						Daily
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Total Vehicle Rates									
Total Vehicle Rates									
Trip Generation Rates[1]	1,332.38	TSF	0.2910	0.0717	0.3673	0.4087	0.3883	0.7970	4.9591
Trip Generation			388	96	489	545	517	1062	6,607
Passenger Car Equivalent Rates Calculations									
Passenger Cars									
Trip Generation Rates[1]	1,332.38	TSF	0.2800	0.0592	0.3392	0.3998	0.3733	0.7731	4.3155
Trip Generation			373	79	452	533	497	1030	5,750
PCE Factor[2]			1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCEs			373	79	452	533	497	1030	5,750
2-Axle Trucks									
Trip Generation Rates[1]			0.0009	0.0009	0.0019	0.0002	0.0010	0.0011	0.1329
Trip Generation			1	1	3	0	1	2	177
PCE Factor[2]			1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCEs			2	2	5	0	2	3	266
3-Axle Trucks									
Trip Generation Rates[1]			0.0027	0.0030	0.0057	0.0013	0.0025	0.0038	0.1149
Trip Generation			4	4	8	2	3	5	153
PCE Factor[2]			2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCEs			8	8	16	4	6	10	306
4-Axle Trucks									
Trip Generation Rates[1]			0.0074	0.0085	0.0205	0.0074	0.0116	0.0190	0.3957
Trip Generation			10	11	27	10	15	25	527
PCE Factor[2]			3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCEs			30	33	81	30	45	75	1,581
Total Project Trip Generation (Trips, By Vehicle Type)									
Warehouse	1,332.38	TSF							
Passenger Cars			373	79	452	533	497	1,030	5,750
2-Axle Trucks			1	1	3	0	1	2	177
3-Axle Trucks			4	4	8	2	3	5	153
4+ Axle Trucks			10	11	27	10	15	25	527
All Trucks			15	16	38	12	19	32	857
Total Vehicles			403	95	490	545	516	1,062	6,607
Total Project Trip Generation (Passenger Car Eqivalent Trips, By Vehicle Type)									
Passenger Cars			373	79	452	533	497	1,030	5,750
Truck PCE									
2-Axle Trucks			2	2	5	0	2	3	266
3-Axle Trucks			8	8	16	4	6	10	306
4+ Axle Trucks			30	33	81	30	45	75	1,581
Total Truck PCE			40	43	102	34	53	88	2,153
Total PCE			413	122	554	567	550	1,118	7,903

[1] Trips based on Surveys and application to Proposed Project.

[2] Recommended PCE Factor per SBCTA Guidelines

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