

APPENDIX M

Traffic Analyses

DATE: March 13, 2024
TO: Yemi Alade, Link Logistics Real Estate
FROM: Alex So, Urban Crossroads
JOB NO: 14715-06 VMT-FINAL

CHERRY AVENUE INDUSTRIAL BUILDING VEHICLE MILES TRAVELED (VMT) ANALYSIS

Urban Crossroads, Inc. is pleased to provide the following Vehicle Miles Traveled (VMT) Analysis for Cherry Avenue Industrial Building (**Project**), which is located at 5910 Cherry Avenue in the City of Long Beach.

PROJECT OVERVIEW

The proposed Project would involve the construction of a new 304,344 square foot (SF) tilt-up industrial building with associated improvements, including parking and landscaping. A preliminary site plan can be found in **Attachment A**.

The proposed Project was initially submitted to the City of Long Beach for site plan review in SPR22-078. The City's determined that the proposed project qualified for a Class 32 categorical exemption (CatEx).

A letter from the Law Office of Jordan R. Sisson (dated April 18, 2023) appealing the City Planning Commission's Site Plan Review approval of the proposed Project and the analysis previously conducted to support the proposed California Environmental Quality Act (CEQA) Class 32 exemption was received in advance of the April 18, 2023, City Council Hearing, and withdrawal of the Project's original application (referred to as Appeal Letter). The Appeal Letter included comments contesting the Class 32 exemption based on a review of specific technical areas (e.g., transportation, air quality, and noise). Transportation-related comments were prepared by Urban Systems Associates, Inc. based on a review of the focused Traffic Assessment (dated March 30, 2022) and the Vehicle Miles Traveled (VMT) Analysis (dated April 5, 2022) prepared by Urban Crossroads for the proposed Project.

The Project is proposing the development of a speculative industrial building. The analysis previously prepared in the Cherry Avenue Warehouse Vehicle Miles Traveled Analysis (dated April 5, 2022) was prepared in accordance with the City's Guidelines. The screening level VMT evaluation found that the Project would generate 448 net new two-way trips per day. Consistent with the City's Guidelines, additional analysis was not conducted nor required beyond the screening level VMT evaluation since the Project trips were anticipated to fall below the City's threshold for requiring any additional VMT analyses (i.e., the Project would generate fewer than 500 net new average daily vehicle trips).

For the proposed 304,344 square foot speculative industrial building development. As such, the following VMT analysis has been prepared in support of the EIR. However, to respond to the concerns raised in the Appeal Letter, because the future tenant is unknown, and because a variety of industrial uses would be permitted, this VMT analysis evaluates seven land uses (referred to as Tenant Use Options).

- Tenant Use Option 1: 304,344 sf Manufacturing use
- Tenant Use Option 2: 304,344 sf General Light Industrial use
- Tenant Use Option 3: 304,344 sf Warehouse use
- Tenant Use Option 4: 304,344 sf High-Cube Fulfillment (Non-Sort) use
- Tenant Use Option 5: 304,344 sf High-Cube Cold Storage use
- Tenant Use Option 6: 76,086 sf Manufacturing and 228,258 sf Warehouse use
- Tenant Use Option 7: 76,086 sf Manufacturing and 228,258 sf High-Cube Transload use

BACKGROUND

CEQA requires all lead agencies to adopt VMT as the measure for identifying transportation impacts for land use projects. To comply with CEQA, the City of Long Beach adopted The City of Long Beach Traffic Impact Analysis Guidelines (June of 2020) (**City Guidelines**) (1). The City Guidelines have been utilized to prepare the following VMT analysis.

VMT ANALYSIS

MODELING METHODOLOGY

The City Guidelines identifies the Southern California Associations of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) travel model as the appropriate traffic forecasting tool to conduct a VMT analysis in the City. The SCAG RTP/SCS trip-based model is a useful tool to estimate VMT as it considers interaction between different land uses based on socioeconomic data (SED) such as population, number of households, and employment. Urban Crossroads has obtained SCAG model based VMT estimates for existing (2023) and cumulative (2040) conditions from Fehr and Peers, which maintains the SCAG model in-house. The SCAG model provides VMT estimates by individual traffic analysis zone (TAZ), as well as for the Los Angeles County region. These estimates are needed to conduct a project-level VMT analysis consistent with the City Guidelines.

The SCAG model was developed 13 employment categories consistent with the North American Industry Classification System (NAICS) (United States 2017). For industrial employment the SCAG model identifies manufacturing and warehousing employees. As the SCAG model does not contain industrial employment sub-categories that would provide sufficient variation in trip making activity between the different Tenant Use Options, for the purposes of this VMT analysis, three different modeling scenarios were used to represent the 7 potential Tenant Use Options for the Project. The modeling scenarios include 1) manufacturing, 2) warehousing and 3) a mix of manufacturing and warehousing. Table 1 includes the SED inputs used to represent the Project in the SCAG model for each of the modeling scenarios.

TABLE 1: PROJECT SED INPUTS

	Manufacturing Employment	Warehouse Employment	Total Employment ¹	Project LU Option
Scenario 1: Manufacturing	367	0	367	Tenant Use Option 1 Tenant Use Option 2
Scenario 2: Warehousing	0	200	200	Tenant Use Option 3 Tenant Use Option 4 Tenant Use Option 5
Scenario 3: Warehousing & Manufacturing	92	150	242	Tenant Use Option 6 Tenant Use Option 7

¹ SCAG Employment Density Report; Table II-B (October 2001).

VMT METRIC AND SIGNIFICANCE THRESHOLD

The City Guidelines state that the efficiency metric VMT per employee is the appropriate measure for evaluating industrial land use projects in the City of Long Beach.¹ Daily home-based work VMT per employee represents the commute portion of the daily trips. The City Guidelines go on to establish a significance threshold for industrial projects that are consistent with the City's General Plan Land Use Element as 'no net change in VMT per employee'. As the Project is located in a General Industrial (IG) zoning district and the Project's Tenant Use Options are allowed uses within this zoning designation, the appropriate impact threshold to be used for this VMT analysis is "no net change in VMT per employee".

For the purposes of this analysis, the "no net change in VMT per employee" has been employed for both the Project's TAZ and the regional average (Los Angeles County).

VMT ESTIMATES

SCENARIO 1: MANUFACTURING TENANT USE OPTION 1 & 2

Scenario 1 includes modeling inputs and VMT forecasting for the Manufacturing Tenant Use Option. The home-based work VMT per employee for the Project's TAZ and the Los Angeles County region were estimated for existing (2023) and cumulative year (2040) using the SCAG travel demand model. Table 2 shows the resulting net change in VMT per employee estimates for the Project's TAZ and the Los Angeles County region.

TABLE 2: SCENARIO 1: MANUFACTURING PROJECT VMT AND VMT THRESHOLD

VMT per Employee	Without Project	With Project	Net Change	Exceeds VMT Threshold?
Existing Project TAZ	17.3	16.2	-1.1	No
Cumulative Project TAZ	14.5	12.1	-2.4	No
Existing Regional Average	16.4	16.2	-0.2	No
Cumulative Regional Average	13.3	13.1	-0.2	No

¹ City Guidelines, Determine Metric; Page 10, Section 2.3.1

As shown Table 2, the Manufacturing Use Option will not result in a net increase in home-based work VMT per employee for either the Project TAZ or Los Angeles County region. The Manufacturing Use Option would result in a less than significant VMT impact.

SCENARIO 2: WAREHOUSING TENANT USE OPTION 3, 4, AND 5

Scenario 2 includes modeling inputs and VMT forecasting for warehousing (Tenant Use Options 2, 3 and 4). The home-based work VMT per employee for the Project's TAZ and the Los Angeles County region were estimated for existing (2023) and cumulative year (2040) using the SCAG travel demand model. Table 3 presents the resulting net change in VMT per employee estimates for the Project's TAZ and the Los Angeles County region.

TABLE 3: SCENARIO 2: WAREHOUSING PROJECT VMT AND VMT THRESHOLD

VMT per Employee	Without Project	With Project	Net Change	Exceeds VMT Threshold?
Existing Project TAZ	17.3	17.1	-0.2	No
Cumulative Project TAZ	14.5	14.4	-0.1	No
Existing Regional Average	16.4	16.3	-0.1	No
Cumulative Regional Average	13.3	13.1	-0.2	No

As shown Table 3, the Project will not result in a net increase in home-based work VMT per employee for either the Project TAZ or Los Angeles County region. Project Tenant Options 2, 3, and 4 would have a less than significant VMT impact.

SCENARIO 3: MANUFACTURING & WAREHOUSING TENANT USE OPTIONS 6 AND 7

Scenario 3 includes modeling inputs and VMT forecasting for the combined manufacturing and warehousing Tenant Use Options 6 and 7. The home-based work VMT per employee for the Project's TAZ and the Los Angeles County region were estimated for existing (2023) and cumulative year (2040) using the SCAG travel demand model. Table 4 presents the resulting net change in VMT per employee estimates for the Project's TAZ and the Los Angeles County region.

TABLE 4: SCENARIO 3: MANUFACTURING & WAREHOUSING PROJECT VMT AND VMT THRESHOLD

VMT per Employee	Without Project	With Project	Net Change	Exceeds VMT Threshold?
Existing Project TAZ	17.3	17.1	-0.2	No
Cumulative Project TAZ	14.5	14.3	-0.2	No
Existing Regional Average	16.4	16.3	-0.2	No
Cumulative Regional Average	13.3	13.1	-0.2	No

As shown in Table 4, the Scenario 3 will not result in a net increase in home-based work VMT per employee for either the Project TAZ or Los Angeles County region. Tenant Use Options 6 and 7 are determined to have a less than significant VMT impact.

CONCLUSIONS

The following summarizes the conclusions resulting from this VMT analysis:

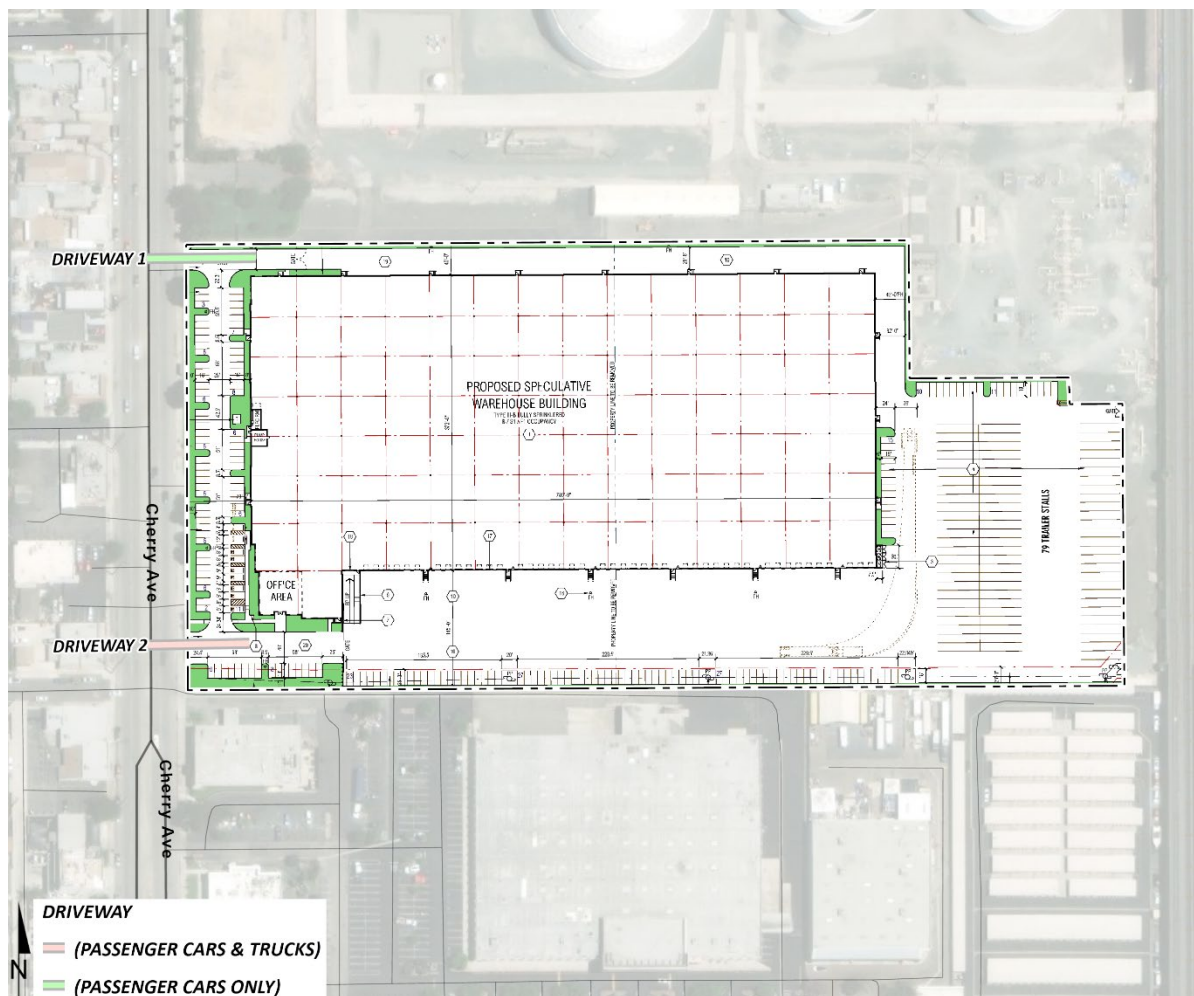
- VMT estimates were prepared based on three modeling scenarios to address the proposed Project's seven Tenant Use Options. The three modeling scenarios were manufacturing, warehousing and a mix of manufacturing and warehousing.
- Home-based work VMT per employee estimates were prepared for existing (2023) and cumulative (2040) traffic scenarios for the Project's TAZ and Los Angeles County region with and without the Project's Tenant Use Options.
- The Project was not found to increase home-based work VMT per employee for either existing (2023) or cumulative (2040) conditions at either the TAZ or Los Angeles County region.
- Based on the City's adopted VMT impact threshold of no net change in VMT per employee for projects consistent with the City's General Plan Land Use, Tenant Use Options were found to have a less than significant VMT impact.

If you have any questions, please contact me directly at aso@urbanxroads.com.

REFERENCES

1. **City of Long Beach.** *Traffic Impact Analysis Guidelines*. June 2020.

ATTACHEMENT A
PRELIMINARY SITE PLAN



DATE: February 22, 2024
TO: Yemi Alade, Link Logistics Real Estate
FROM: Alex So, Urban Crossroads
JOB NO: 14715-05 VMT Sup Truck - FINAL

CHERRY AVENUE INDUSTRIAL BUILDING SUPPLEMENTAL VEHICLE MILES TRAVELED (VMT) ANALYSIS

Urban Crossroads, Inc. is pleased to provide the following Supplemental Vehicle Miles Traveled (VMT) Analysis for the Cherry Avenue Industrial Building (**Project**), which is located at 5910 Cherry Avenue in the City of Long Beach.

PROJECT OVERVIEW

The proposed Project is to consist of a single 304,344 square foot (sf) speculative industrial building. As such, the following VMT analysis has been prepared in support of the EIR. To respond to the concerns raised in the Appeal Letter, because the future tenant is unknown, and because a variety of industrial uses would be permitted, this supplemental VMT analysis considers seven land uses (referred to as Tenant Use Options).

- Tenant Use Option 1: 304,344 sf Manufacturing use
- Tenant Use Option 2: 304,344 sf General Light Industrial use
- Tenant Use Option 3: 304,344 sf Warehouse use
- Tenant Use Option 4: 304,344 sf High-Cube Fulfillment (Non-Sort) use
- Tenant Use Option 5: 304,344 sf High-Cube Cold Storage use
- Tenant Use Option 6: 76,086 sf Manufacturing and 228,258 sf Warehouse use
- Tenant Use Option 7: 76,086 sf Manufacturing and 228,258 sf High-Cube Transload use

SUPPLEMENTAL VMT ANALYSIS

In an effort to fully disclose potential VMT impacts, this memorandum includes a supplemental VMT evaluation measuring Project's estimated total VMT per service population (i.e., project related employment). Total VMT per service population calculation differs from the City's adopted VMT metric for industrial land use

projects of Home-Based Work (HBW) VMT per employee in that total VMT per service population gives an estimate all vehicle trips (i.e., passenger cars and trucks) and all trip purposes, whereas HBW VMT per employee is focused on commute trips only and excludes other trip purposes and truck trips.

For purposes of this analysis, total VMT has been estimated from vehicle trip generation rates (see Attachment A) consistent with the Project's traffic study, and average trip length for each vehicle type. Average trip length information has been obtained from the Southern California Councils of Government (SCAG) Model for passenger cars and StreetLight™ Data's Truck Volume Metrics for medium heavy-duty trucks (MDT) (2 and 3 axle trucks) and heavy heavy-duty trucks (HDT) (4+ axle trucks).

ABOUT STREETLIGHT™ DATA¹

StreetLight™ Data's Truck Volume Metrics are based on five linked machine-learning models that estimate vehicle volume and trip length by vehicle class and total vehicles. StreetLight™ Data provides truck volume information from 2019 through 2021. To support volume estimates over the range of time periods, StreetLight™ Data applies the Monthly Average Daily Trip (MADT) to the days or parts of the day required for a particular analysis. In the scaling process, StreetLight™ factors the ratio between sample trip counts for particular hours, days and trip counts for the entire month with the volume for corresponding hours, day type and MADT for that zone.

The estimated truck volume is compared to the actual volume reported by permanent traffic counters to validate model results. The permanent counter data comes from the Federal Highway Administration (FHWA) Travel Monitoring Analysis System (TMAS) CLS (vehicle classification) dataset, which includes traffic counts from more than 3,000 unique sites from January 2019 through December 2021. The StreetLight Model produces Pearson correlation coefficients of 0.99, 0.92 and 0.97 for light- medium- and heavy-duty vehicles, respectively, between estimated and actual MADT, indicating that StreetLight's™ model is highly explanatory.

SURVEY AREA

Truck travel characteristics have been collected from an existing industrial area located along the I-710 Freeway based on its proximity to the proposed Project and anticipated operational characteristics of the area similar to the Project. Data collected for this survey includes MDT and HDT that originated, ended or passed through the surveyed area over the most recent consecutive 12-month period available from StreetLight™ Data for truck travel volume metrics.

TRIP LENGTH

Utilizing the above parameters, average daily zone traffic² of MDT vs. HDT, average trip length by vehicle class, and distance bins³ of per-trip length in miles was obtained from StreetLight Data. Results from the StreetLight™ Data is presented in Table 1.

¹ StreetLight Insight Truck Volume Methodology and Validation (September 2022).

² Average daily zone traffic was then used to calculate % of total aggregated trucks for each disaggregate.

³ Distance bins were defaulted to: 0-1, 1-2, 2-5, 5-10, 10-20, 20-30, 30-40, 40-50, 50-60, 60-70, 70-80, 80-90, 90-100, and 100+ in miles.

TABLE 1: AVERAGE TRIP LENGTH BY VEHICLE TYPE

	MDT Avg Trip Length	HDT Avg Trip Length
Survey Area	19.5	48.4

As shown in Table 1, based on traffic monitoring data collected for the most recent 12-month period of truck travel volume metrics available from StreetLight Data, an MDT trip length of 19.5 and a HDT trip length of 48.4 will be utilized for the 7 Tenant Use Options.

TENANT USE OPTION VMT ESTIMATES

Table 2 presents an estimation of total VMT for the 7 Tenant Use Options on a typical weekday, which utilizes vehicle trip generation rates consistent with the Project's traffic study multiplied by the average trip length for each vehicle type. Using vehicle trip generation for each Tenant Use Option as shown in Attachment A and vehicle trip lengths as previously described (i.e., 19.5 miles for automobiles and 48.4 miles for trucks). Table 2 presents Project generated VMT estimates for each Tenant Use Option.

TABLE 2: TENANT USE OPTION TOTAL VMT

Tenant Use Option 1	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	1,310	11	14,410
MDT	52	19.5	1,014
HDT	86	48.4	4,162
Total Truck	138	-	5,176
Total	1,448	-	19,586
Tenant Use Option 2	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	1,406	11	15,466
MDT	30	19.5	585
HDT	48	48.4	2,323
Total Truck	78	-	2,908
Total	1,484	-	18,374
Tenant Use Option 3	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	338	11	3,718
MDT	68	19.5	1,326
HDT	114	48.4	5,518
Total Truck	182	-	6,844
Total	520	-	10,562
Tenant Use Option 4	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	482	11	5,302
MDT	26	19.5	507
HDT	44	48.4	2,130
Total Truck	70	-	2,637
Total	552	-	7,939

TABLE 2 CONT'D: TENANT USE OPTION TOTAL VMT

Tenant Use Option 5	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	418	11	4,598
MDT	106	19.5	2,067
HDT	124	48.4	6,002
Total Truck	230	-	8,069
Total	648	-	12,667
Tenant Use Option 6	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	582	11	6,402
MDT	66	19.5	1,287
HDT	108	48.4	5,227
Total Truck	174	-	6,514
Total	756	-	12,916
Tenant Use Option 7	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	598	11	6,578
MDT	32	19.5	624
HDT	54	48.4	2,614
Total Truck	86	-	3,238
Total	684	-	9,816

Table 3 presents the calculation of the total VMT per service population, which is the product of total VMT generated by the Project on a typical weekday divided by the Project's service population (i.e., employees). The efficiency metric VMT per service population is commonly used throughout Southern California to evaluate the efficiency of travel for a given project based on total VMT. Table 3 identifies a comparison between Project's total VMT per service population to an applicable impact threshold. Although not specified by City Guidelines, it is reasonable to assume that a project with a VMT per service population that exceeds the existing regional⁴ average would result in a potentially significant impact. Existing VMT per service population for the region (i.e., Los Angeles County) has been calculated using the Southern California Association of Governments (SCAG) travel demand model. For the purposes of this evaluation, the existing (2023) regional average VMT per service population of 30.6 has been utilized.

⁴ The City Guidelines defines regionwide as the Los Angeles County. (Page 11)

TABLE 3: TENANT USE OPTION TOTAL VMT PER SERVICE POPULATION

Scenario	Service Population	Total VMT	Total VMT per Service Population	Regional VMT per Service Population	VMT Exceeds Regional?
Tenant Use Option 1	367	19,566	53.4	30.6	Yes
Tenant Use Option 2	367	18,374	50.1	30.6	Yes
Tenant Use Option 3	200	10,562	52.8	30.6	Yes
Tenant Use Option 4	200	7,939	39.7	30.6	Yes
Tenant Use Option 5	200	12,667	63.3	30.6	Yes
Tenant Use Option 6	242	12,916	53.4	30.6	Yes
Tenant Use Option 7	242	9,816	40.6	30.6	Yes

As shown in Table 3, each Tenant Use Option is forecasted to generate total VMT per service population increase above the existing regional average VMT per service population, which would result in a significant VMT impact.

CONCLUSION

Based on the results of this supplemental VMT evaluation the following findings are made:

- Project generated total VMT inclusive of all vehicle trips (automobiles and trucks) and all trip purposes has been estimated based on trip generation rates consistent with the Project's traffic study.
- Project vehicle trip lengths have been obtained from the SCAG travel demand model (automobiles) and StreetLight™ truck volume metrics (trucks).
- Project generated total VMT and VMT per service population estimates were prepared for the 7 Tenant Use Options.
- Project generated VMT per service population was found to exceed the impact threshold of net increase above the existing regional average VMT per service population and would result in a **significant VMT impact for all 7 Tenant Use Options**.

If you have any questions, please contact me directly at aso@urbanxroads.com.

REFERENCES

1. **Los Angeles County.** *Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report.* June 2020.

ATTACHMENT A

TRIP GENERATION SUMMARY

TABLE A-1: PROJECT TRIP GENERATION SUMMARY

Land Use	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Proposed Project: 100% Manufacturing							
Passenger Cars	152	46	198	66	150	216	1,310
2-Axle Trucks	1	1	2	1	1	2	24
3-Axle Trucks	1	1	2	1	1	2	28
4+-Axle Trucks	3	2	5	2	3	5	86
Trucks	5	4	9	4	5	9	138
Total	157	50	207	70	155	225	1,448
Alternative 1: 100% General Light Industrial							
Passenger Cars	196	26	222	26	169	195	1,406
2-Axle Trucks	0	0	0	0	0	0	14
3-Axle Trucks	0	0	0	0	0	0	16
4+-Axle Trucks	1	1	2	1	1	2	48
Trucks	1	1	2	1	1	2	78
Total	197	27	224	27	170	197	1,484
Variance	40	-23	17	-43	15	-28	36
Alternative 2: 100% Warehousing							
Passenger Cars	36	9	45	10	35	45	338
2-Axle Trucks	1	0	1	1	1	2	30
3-Axle Trucks	1	1	2	1	1	2	38
4+-Axle Trucks	2	2	4	3	3	6	114
Trucks	4	3	7	5	5	10	182
Total	40	12	52	15	40	55	520
Variance	-117	-38	-155	-55	-115	-170	-928
Alternative 3: 100% High-Cube Fulfillment (Non-Sort)							
Passenger Cars	34	5	39	17	28	45	482
2-Axle Trucks	1	0	1	0	0	0	12
3-Axle Trucks	1	1	2	0	0	0	14
4+-Axle Trucks	2	2	4	1	1	2	44
Trucks	4	3	7	1	1	2	70
Total	38	8	46	18	29	47	552
Variance	-119	-42	-161	-52	-126	-178	-896
Alternative 4: 100% High-Cube Cold Storage							
Passenger Cars	23	1	24	6	22	28	418
2-Axle Trucks	1	2	3	2	2	4	80
3-Axle Trucks	0	1	1	1	0	1	26
4+-Axle Trucks	2	3	5	2	3	5	124
Trucks	3	6	9	5	5	10	230
Total	26	7	33	11	27	38	648
Variance	-131	-43	-174	-59	-128	-187	-800
Alternative 5: 25% Manufacturing & 75% Warehousing							
Passenger Cars	65	18	83	24	64	88	582
2-Axle Trucks	1	0	1	1	1	2	30
3-Axle Trucks	1	1	2	1	1	2	36
4+-Axle Trucks	2	2	4	3	3	6	108
Trucks	4	3	7	5	5	10	174
Total	69	21	90	29	69	98	756
Variance	-88	-29	-117	-41	-86	-127	-692
Alternative 6: 25% Manufacturing & 75% High-Cube Transload							
Passenger Cars	50	13	63	22	53	75	598
2-Axle Trucks	1	0	1	0	0	0	14
3-Axle Trucks	1	1	2	0	1	1	18
4+-Axle Trucks	2	2	4	1	2	3	54
Trucks	4	3	7	1	3	4	86
Total	54	16	70	23	56	79	684
Variance	-103	-34	-137	-47	-99	-146	-764