

High Cube Warehouse Truck Trip Study

Stakeholder Working Group

October 11, 2013

FOR DISCUSSION ONLY

Overview

- Introduction
- Business Survey Preliminary Results
- Trip Counts
 - Methods
 - Results
- Next Steps

Introduction

- Study is developing recommendation for high cube warehouse trip rate for voluntary use in CEQA air quality analyses
- Study is developing two datasets
 - Business survey
 - Trip counts
- Current trip rate recommendations:

Trips per thousand square feet of warehouse

Trip Rate	CalEEMod default	ITE	NAIOP (2010)
Overall	2.59	1.68	0.95
Trucks only	1.04	0.64	0.29

Business Survey

- Survey conducted Feb – May 2013
 - Preliminary report and available data provided to group
- Status of survey confidentiality request
 - SCAQMD staff contacted all survey respondents
 - 13 businesses agreed to release anonymous data
 - 11 businesses requested confidentiality
 - 39 businesses did not respond to request

Use of Business Survey Results

- Purpose of survey is to provide information about warehouse operations and how it might affect trip rates
- Businesses reluctant to provide data
 - ~400+ surveys → 63 respondents → 34 high cube warehouses
 - All data aggregated based on facilities' responses to questions
- Three warehouses answering business survey also included in trip count dataset
 - Self reporting in survey within 16% of trip counts
- Business survey trip rates will not be used for final recommendation
- Other results in survey provide potentially useful insight into warehouse operations

Business Survey Trip Rate

- Average overall rate = 1.2 trips/tsf, trucks = 0.53
- Preliminary analysis of survey results did not find strong correlation with:
 - Warehouse building characteristics (size, height, # docks)
 - Percent utilization of warehouse
 - Goods turnover rate
 - Warehouse distance from ports or distance that goods travel
- Truck trip rate most correlated with miles of conveyors used in warehouse

Business Survey Peaking Data

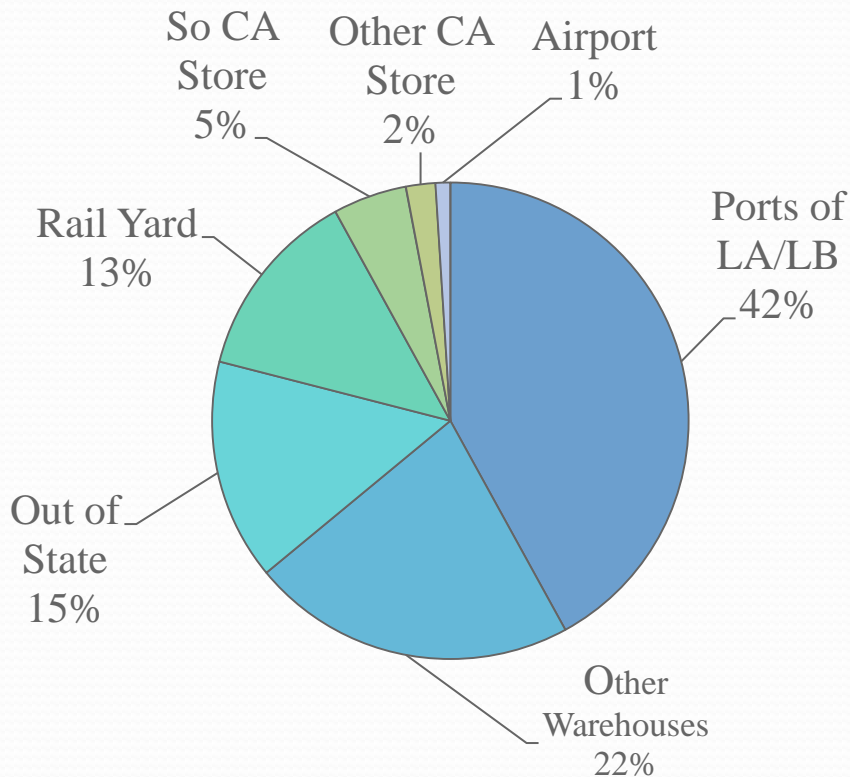
- Seasonal fluctuation
 - Average reported truck rate 27% higher in high season
 - Fall is most commonly reported High Season

Monthly Count of HC Warehouses High Season

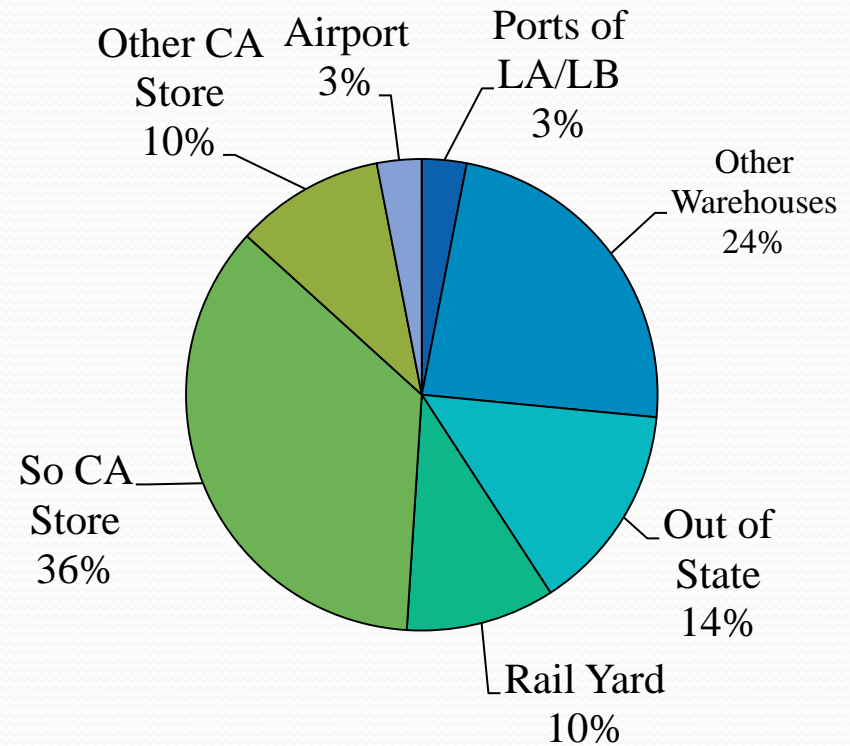
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	4	6	6	3	4	6	6	15	14	15	11

- Yearly fluctuation
 - 40% of HC warehouses report 15 - 100% change in daily truck rate compared to historical best year
 - ~50-50 higher traffic vs. lower traffic

Business Survey - Destinations



Where Goods Come From*



Where Goods Go*

*N=22

Business Survey Results - Other

- 74% of high-cube warehouses report using onsite hostlers
 - Average of 3.1 hostlers per million square feet
- Four HC warehouses use onsite rail to deliver goods
 - Average truck trip rate 37% lower than non-rail sites

Trip Count Methodology

- Tube counts (Jan. 2013)

47

- Consultant provided list of 47 warehouses to potentially count

- List based partially on facilities likely to provide access
- List included building characteristics

-17

- SCAQMD staff rejected 17 that did not meet 'high cube' criteria

-13

- 13 additional sites did not provide site access

17

- 17 sites originally counted with tubes

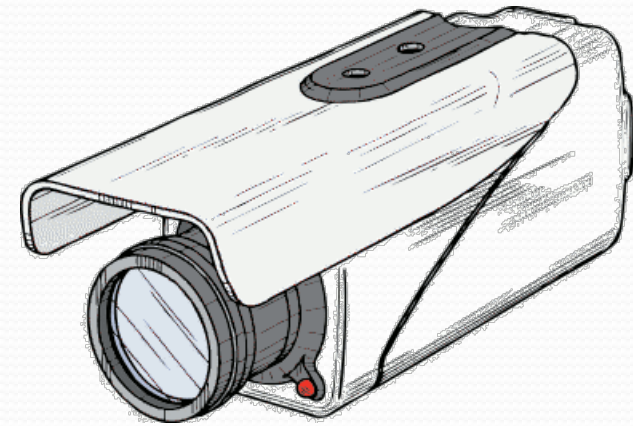
- During QA/QC, many questions arose regarding:
 - Counts of trucks vs. cars
 - Employee vs. truck driveways
 - Multiple tenant buildings

- To ensure robust data, all tube counts conservatively rejected by SCAQMD staff



Trip Count Methodology

- Camera Counts (Jul-Sept, 2013)
 - List of 17 tube count sites reduced to 11
 - Removed:
 - Multiple tenants/buildings using one driveway
 - Building size in low range (e.g., <300k sf)
 - All 11 sites recounted using 24-hour cameras at every driveway
 - Last round of trip counts will also use cameras



Trip Count Results

Site	City	Size (tsf)	Trucks	Total Vehicles	Truck Rate	Overall Rate
Americold	Industry	261	249	455	0.96	1.75
Custom Goods	Rancho Cucamonga	240	155	358	0.65	1.49
McKesson	Santa Fe Springs	255	151	646	0.59	2.53
Ralphs	Paramount	556	526	1,154	0.95	2.07
Big O Tires	Mira Loma	404	107	239	0.26	0.59
Home Depot	Mira Loma	1,100	467	944	0.42	0.86
Komar	Mira Loma	657	129	802	0.2	1.22
K-Swiss	Mira Loma	309	56	168	0.18	0.54
Meiko	Mira Loma	558	136	380	0.24	0.68
Home Depot	Ontario	650	578	1,984	0.89	3.05
K-Mart	Ontario	1,610	368	823	0.23	0.51

Preliminary Trip Count Summary

Summary Table Based on Partial Data Set

	CalEEMod	ITE	NAIOP 2010 (>500k sf)	Round 1 (All), N=11	Round 1 (>500k sf), N=6
Average Overall	1.44	1.68	0.95	1.39	1.4
95th % Overall	2.59	NR*	2.24*	2.79	2.81
Average Trucks	0.58	0.64	0.29	0.51	0.49
95th % Trucks	1.04	NR*	0.58*	1.39	0.93

* Parameter not reported in original study

- Statistics will be updated with additional trip count data

Trip Counts Historical Comparison

- Two warehouses counted previously in 2010 (NAIOP)

Site	Truck Rate (2010 / 2013)	Overall Rate (2010 / 2013)
Home Depot (Mira Loma)	0.08 / 0.42	0.49 / 0.86
K-Mart	0.21 / 0.23	0.63 / 0.51

- Comparison supports business survey conclusion that rates are variable through time

Summary

- Preliminary business survey results available
- Round 1 Trip Counts complete

Next Steps

- Complete analysis of Business Survey
 - Feedback welcome
- SCAQMD staff has compiled ~25 new sites to count with cameras
 - Focus on sites >500,000 sf
 - Feedback from group on additional sites will be considered
- Counts planned for Oct – Nov 2013
- Study conclusion by end of 2013