

Warehouse Truck Trip Study Data Results and Usage

Inland Empire Logistics Council
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Cleaning the Air That We Breathe...

Purpose

- To provide guidance on how to quantify warehouse truck emissions for CEQA air quality analyses
 - Technical guidance to lead agencies and project proponents
 - Consistency for SCAQMD staff comments on air quality analysis
 - To establish “substantial evidence” for assumptions used

CEQA Air Quality Analyses for Warehouses

- Quantifying air quality impacts for CEQA
 - Different than traffic impacts
 - Truck emissions >90% of air impact
- CEQA requires use of “conservative analysis” to afford “fullest possible protection of the environment”
 - SCAQMD CEQA Air Quality Handbook recommends “utilizing the highest daily emissions”
- SCAQMD staff comment letters or testimonies may be used in CEQA litigation

Key Challenges When Determining Trip Rate for Warehouses

- Tenant often unknown when CEQA document certified
- Finding most appropriate trip rate for air quality analysis
 - ITE vs. other recommendations
 - Annual average rates vs. peak daily rates
 - Potential for overbuilding transportation infrastructure
- Availability of mitigation options
 - Feasibility of clean trucks
 - Other (e.g., siting, truck routes, fueling infrastructure)

Current Guidance to Determine Use of Peak Rates for CEQA Air Quality Analysis

- Guidance applicable to all land uses
- Different air quality thresholds / averaging periods require different emission rates

CEQA Threshold	Averaging Period	Use Average Rate	Use Peak Rate
Regional Criteria Pollutant	Daily		X
Localized Criteria Pollutant	≤ 24hrs		X
Localized Criteria Pollutant	> 24hrs	X	
HRA – cancer	70 year	X	
HRA – chronic	1 year	X	
HRA – acute	1 hour		X
GHG	30 year	X	

ITE Trip Rates

- Institute of Transportation Engineers
 - ITE is an international educational and scientific association of transportation engineers and other professionals who are responsible for meeting mobility and safety needs.
 - ITE compiles data provided voluntarily to ITE by local government, consultants, etc. for use with:
 - ❑ Site access requirements
 - ❑ Estimates for off-site transportation improvements
 - ❑ Implications for zoning/land use changes
- Local governments
 - Project-specific rates commonly differ from ITE guidance
 - ❑ 14 out of 18 CEQA docs in past year use truck rates < ITE

SCAQMD Warehouse Truck Study Findings

- Study collected two datasets
 - Trip Counts at Warehouses (average rates)
 - Business Surveys (peaking factor)

Trip Count Data

Grouping	Trip Rate (trips/tsf)	
	Overall	Trucks
All Sites (N=33)	1.51	0.50
Non-Cold Storage (N=28)	1.34	0.40
Only Cold Storage (N=5)	2.49	1.10

Peaking Factor from Business Survey

Cold Storage	Non-Cold Storage
20%	33%

SCAQMD Trip Counts Compared to Existing Data

- Trip counts demonstrate wide range of trip rates
 - High variability consistent with ITE results
 - SCAQMD trip counts ~60% higher than trip rates from available CEQA documents for same facility
 - SCAQMD truck trip counts ~140% higher than truck trip counts from 2008 NAIOP study for same facility
- Key parameters contributing to variation
 - Business cycle (e.g., seasonal, daily, recession, etc.)
 - Business type (e.g., e-commerce vs. grocery)

Data Comparison - SCAQMD Trip Counts vs. Previous CEQA Analyses*

Facility Name	City	Year of CEQA Doc	SCAQMD Rate / CEQA Rate		SCAQMD Rate Higher CEQA Doc Rate Higher
			Overall	Truck	
Cott Beverages	San Bernardino	1995	3.24 / 1.44	1.39 / 0.53	
Walmart	SB County	1998	2.1 / 1.57	1.06 / 0.37	
Home Depot	Redlands	2006	2.8 / 1.1	0.97 / 0.54	
Ralphs	Paramount	2006	2.07 / 4.96	NA	
Smart and Final - Quad/Graphics	Riverside	1982	2.53 / 1.86	NA	
Georgia Pacific	Ontario	1997	0.72 / 1.6	0.53 / 0.38	
Ross	Moreno Valley	2003	3.34 / 1.58	0.5 / 0.32	
Ross	Perris	2001	3.68 / 0.59	0.45 / 0.26	
Western States Distribution	Riverside	1982	1.17 / 1.86	NA	
UPS SCS	Jurupa Valley	2003	1.95 / 1.58	0.39 / 0.32	
Bridgestone/Firestone	Ontario	1997	0.82 / 1.6	0.35 / 0.38	
Skechers	Moreno Valley	2008	0.93 / 1.69	0.12 / 0.91	

On Average, SCAQMD Counts ~60% higher

**Only 12 CEQA docs available from 33 sites*

Data Comparison – SCAQMD 2013/2014 vs. NAIOP 2008

Facility Name	SCAQMD Rate / NAIOP Rate		SCAQMD Rate Higher NAIOP Rate Higher
	Overall	Truck	
Ross	3.68 / 2.11	0.45 / 0.22	<div style="background-color: #e0f0e0; padding: 5px; text-align: center;">SCAQMD Rate Higher</div> <div style="background-color: #ffff00; padding: 5px; text-align: center;">NAIOP Rate Higher</div>
Home Depot*	0.84 / 0.65	0.41 / 0.1	
UPS Supply Chain Solutions	1.95 / 0.25	0.39 / 0.01	
Loma Grande Distribution Center / Schneider (Walmart)	0.64 / 0.48	0.36 / 0.08	
Unilever	0.68 / 0.47	0.35 / 0.24	
American Port Services / Schneider (Walmart)	1.2 / 0.52	0.26 / 0.19	
K-Mart	0.51 / 0.63	0.23 / 0.21	
Big 5	1.56 / 1.46	0.2 / 0.08	

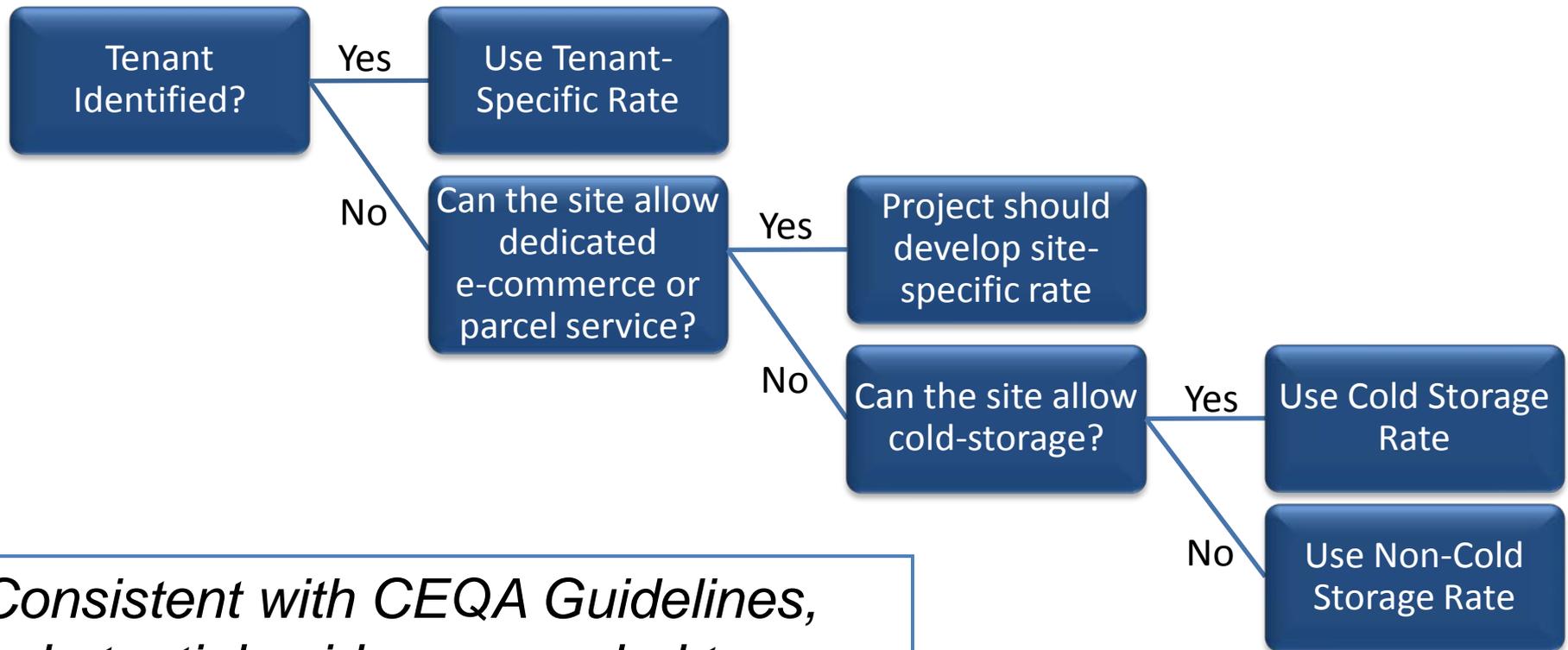


On Average, SCAQMD counts[†] **40% higher** **140% higher**

*Facility expanded to 1.1M sf in period between NAIOP and SCAQMD studies

[†] Excluding UPS

Possible CEQA Air Quality Analysis Approach Facility Category Selection



*Consistent with CEQA Guidelines,
substantial evidence needed to
justify choice of trip rate*

Possible CEQA AQ Analysis Approach

	Grouping	Overall Rates (trips/tsf)		Truck Rate (trips/tsf)	
		Average Rate	Rate with Peaking Factor*	Average Rate	Rate with Peaking Factor*
Existing Trip Rates	<i>ITE</i>	1.68		0.64	
	<i>Typical CEQA doc</i>	1.68		0.34	
	<i>CalEEMod Guidance</i>		2.59		1.04
Possible Approach^{A,B}	<i>Only Cold Storage</i>	2.49	2.99	1.10	1.32
	<i>Non-Cold Storage</i>	1.34	1.78	0.40	0.53

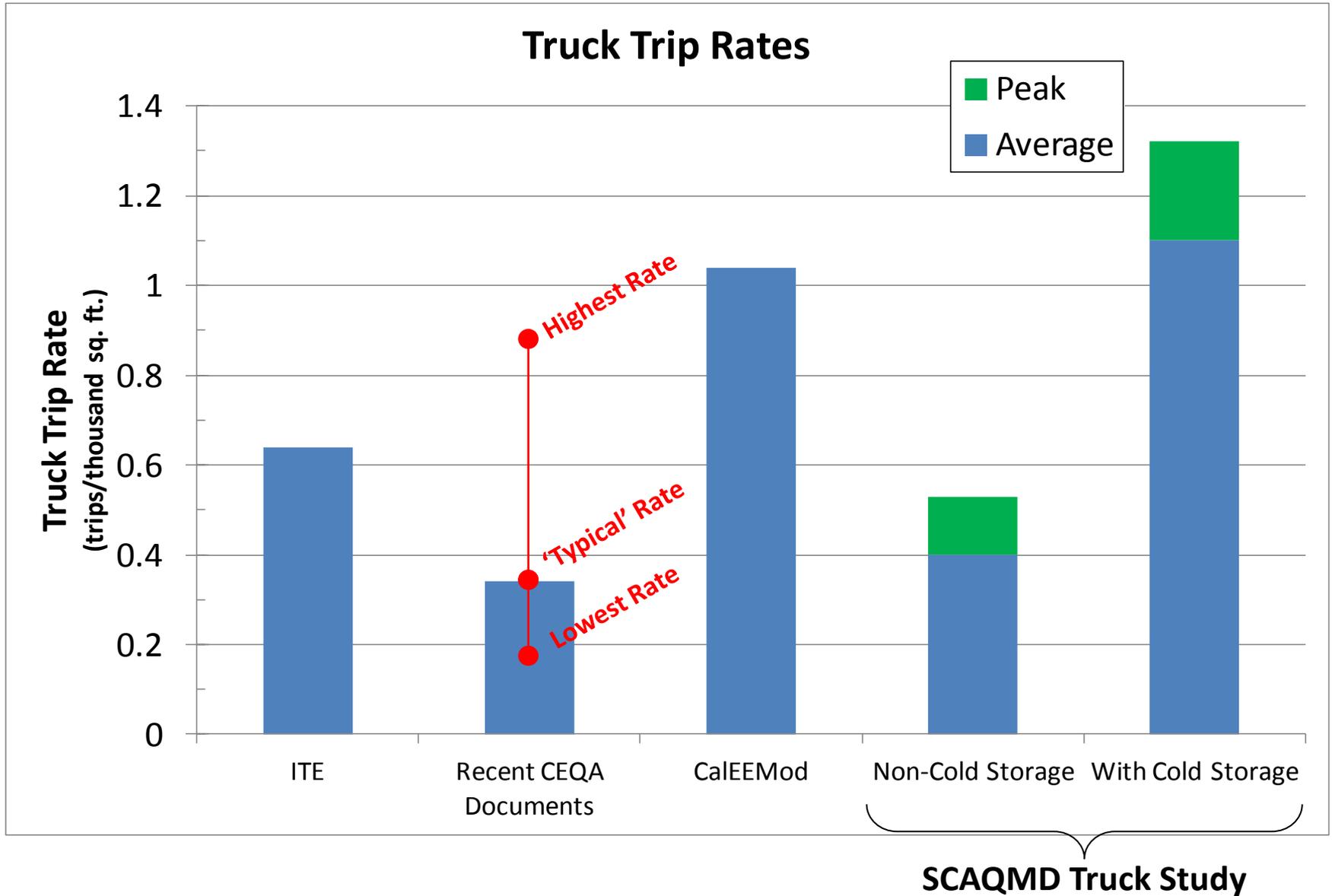
^A *Peaking Factor applied only to averaging periods ≤ one day*

^B *Outlier data removed*

***Peaking Factor from Business Survey**

Cold Storage	Non-Cold Storage
20%	33%

Truck Trip Rate Comparison



Next Steps

- Seek stakeholders input to:
 - Further refine analysis and recommendations
 - Develop HDT fleet mix based on study
 - Develop interim stand alone spreadsheet to calculate mobile source emissions in lieu of CalEEMod
- Collect additional trip count data from warehouses on a biannual basis
- Recommend to ITE to consider splitting out warehouses with cold storage
- Develop updated emission mitigation menu
 - e.g., WRCOG “Good Neighbor” Guidelines (2005)

WRCOG Guidelines

- Recommended mitigation in WRCOG Guidelines:
 - Buffer zones
 - Encourage fleet owners to replace existing diesel fleets with “new model vehicles and/or cleaner technologies, such as electric or compressed natural gas”
 - Reduce diesel trucking activity outside of warehouses
 - Reduce onsite idling
 - Place clearly marked truck routes away from sensitive receptors
 - Encourage alternative fueling infrastructure
 - Educate workers and truckers about impacts from diesel and available resources to reduce impacts