Warehouse Truck Trip Study
Data Results and Usage

Mobile Source Committee
July 25, 2014
Background

• Purpose: To provide guidance on how to quantify warehouse truck emissions for CEQA air quality analyses
  ▪ Technical guidance
  ▪ Establish “substantial evidence” for assumptions
  ▪ Consistency for SCAQMD staff comments
• Truck emissions >90% of air impact
• Tenant often unknown when CEQA document certified
### Existing Trip Rates

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Overall Rate (trips/tsf)</th>
<th>Truck Rate (trips/tsf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Rate</td>
<td>Rate with Peaking Factor*</td>
</tr>
<tr>
<td>Current ITE</td>
<td>1.68</td>
<td>0.64</td>
</tr>
<tr>
<td>Majority of CEQA docs*</td>
<td>1.68</td>
<td>0.34</td>
</tr>
<tr>
<td>CalEEMod Guidance</td>
<td></td>
<td>2.59</td>
</tr>
</tbody>
</table>

Calculated truck trip rate based on Fontana Truck Trip Study (4 warehouses)

* 11 out of 18 CEQA docs in past year use 0.34 truck rate
Truck Trip Study
Process Overview

- Study began in January 2012
- 12 Stakeholder Working Group meetings
- 2 Technical Working Group meetings
- 34 responses to Business Survey*
- Video truck counts using traffic engineer at 33 warehouses**
- UCR traffic engineer and statistician analyzed results

* 400 Business Surveys sent out. 63 warehouses responded. 34 of the 63 warehouses met definition of “high cube warehouse”
** 37 total video counts. 4 excluded because either an outlier or did not meet definition of “high cube warehouse”
Analysis of Data

- Removed outlier data
  - E-commerce and parcel warehouses substantially higher overall trip rate
- Verified only “high cube warehouses” > 200,000 square feet
- Averaged data
  - Overall trip rate per 1,000 sq feet
  - Truck trip rate per 1,000 sq feet
- Three categories:
  - Non-cold storage warehouses
  - Cold storage warehouses
  - Composite for warehouses
Outliers
1. Not a high cube warehouse
2. Uncharacteristic of other facilities (parcel)
3. Trucks use local street for internal circulation
4. Uncharacteristic of other facilities (e-commerce)
## SCAQMD Warehouse Truck Trip Study Findings

<table>
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<tbody>
<tr>
<td></td>
<td>Average Rate</td>
<td>Rate with Peaking Factor</td>
</tr>
<tr>
<td>With Cold Storage</td>
<td>2.49</td>
<td>2.99</td>
</tr>
<tr>
<td>Non-Cold Storage</td>
<td>1.34</td>
<td>1.78</td>
</tr>
<tr>
<td>Composite</td>
<td>1.51</td>
<td>1.98</td>
</tr>
</tbody>
</table>

1. **Peaking Factor** applied only to averaging periods ≤ one day
2. **Outlier data removed**
3. **Peaking Factor from Business Survey**

<table>
<thead>
<tr>
<th>Cold Storage (14)</th>
<th>Non-Cold Storage (16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>33%</td>
</tr>
</tbody>
</table>
Business Position/Recommendation

• Use current edition ITE truck trip rate as default
  ▪ ITE higher than SCAQMD non-cold storage truck rate w/peak: 0.64 vs 0.53 trips/tsf
  ▪ ITE similar to SCAQMD composite truck rate w/peak: 0.64 vs 0.66 trips/tsf
  ▪ ITE captures “peak” daily
  ▪ ITE has established procedures to update trip rates
  ▪ Lead agencies can use site specific data
Truck Trip Rate Comparison

Truck Trip Rates

- **ITE**
- **Recent CEQA Documents**
- **CalEEMod**
- **Non-Cold Storage**
- **With Cold Storage**
- **Composite Calculations**

**SCAQMD Truck Study**
Staff Response

• Can support use of ITE truck trip rate as current default
• SCAQMD Study results with peaking factor are not inconsistent with ITE
• Fontana Truck Trip Study limited applicability
  ▪ Overall trip rate based on 4 warehouses – includes 2 warehouses with zeros
  ▪ No 24-hour truck trip rates reported
  ▪ Truck trip rates using Fontana study are calculated based on 20% truck fleet mix
  ▪ Fontana Study, by itself, is not characteristic of high cube warehouses
Staff Recommendations

- Implement staff interim recommendation
  - Use ITE default values until Governing Board action
  - Reflected in monthly IGR Board letter, NOP comment letter, and CalEEMod users noticed
- Option 1:
  - Continue staff interim recommendation
  - Supplement study by collecting more information on cold storage and peaking rates
- Option 2: See flow chart
Staff Recommendation - Option 2

- **Tenant Identified?**
  - Yes: Use tenant specific rate
  - No: Continue with other options

- **Will the warehouse be developed with e-commerce or parcel service?**
  - Yes: Develop site-specific rate
  - No: Continue with other options

- **Will the warehouse be developed with cold-storage?**
  - Yes: Use SCAQMD Truck Trip Rate with Cold Storage OR Develop Site Specific Rate
  - No: Use SCAQMD Truck Trip Rate for Non-Cold Storage OR Develop Site Specific Rate

- Possibly: Use SCAQMD Composite Truck Trip Rate OR ITE 9th Edition OR Develop Site Specific Rate

Consistent with CEQA Guidelines, substantial evidence needed to justify choice of trip rate
Staff Recommendations (Continued)

- Submit SCAQMD Truck Trip Study results to ITE
- Recommend ITE separate “Cold Storage High Cube Warehouse”
- Recommend ITE evaluate e-commerce type warehouses
- Biannually collect additional trip count data from warehouses
- Develop updated emission mitigation menu e.g., WRCOG “Good Neighbor” Guidelines