High-Cube Warehouse Truck Study

AQMD Mobile Source Committee
March 16, 2012
CEQA Air Quality Analysis

AQMD’s Commenting Role

- AQMD staff recommends new warehouse projects evaluate potential air quality impacts for:
  - Regional impacts
  - Localized and Health Risk impacts
- AQMD staff recommends peak daily, voluntary default assumptions for analyzing air quality impacts for CEQA purposes
- Goal is to encourage full disclosure and implementation of mitigation where applicable and feasible
Background

- First AQMD warehouse study in 2002 investigated proliferation of warehouses in Mira Loma and Fontana
- Air quality and health impacts from warehouses due to diesel trucks (>90% of emissions)
- Warehouse projects continue to increase in numbers and size (≥1 million ft²)
  - 412 million ft² of new warehousing projected in SCAG in next 25 years
  - Ports of Los Angeles and Long Beach forecast tripling of containers in next 25 years
  - New projects being developed now, including 40 million ft² in Moreno Valley
High-Cube Warehouse

• Used for the storage of manufactured goods prior to their distribution locally or regionally.
• Typically 24-30 feet tall
• Contain many dock doors for loading/unloading trucks
• Can facilitate many different types of operations
High Cube Warehouse
Estimating Truck Trips

- Overall Warehouse Trip Rate vs. Truck Trip Rate

*Overall warehouse trip rate includes truck and passenger car trip rate
Institute of Traffic Engineers (ITE)

- ITE is an international educational and scientific association of transportation professionals
- ITE Trip Generation Manual most commonly cited reference to determine trip rates for most land uses
- High Cube Warehouse Overall Trip Rates
  - 7th edition: 4.96/tsf
    - No truck % provided
  - 8th edition: 1.44/tsf
    - Truck rate = 44% or 0.64 /tsf
  - 9th edition: fall 2012
Assumptions Used by CEQA Projects

<table>
<thead>
<tr>
<th>Recent Projects with CEQA Approval</th>
<th>Development Size (ft.²)</th>
<th>Overall Trip Rate</th>
<th>Truck %</th>
<th>Truck Trip Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banning Business Gateway¹</td>
<td>787,000</td>
<td>1.44</td>
<td>20%</td>
<td>0.29</td>
</tr>
<tr>
<td>South Perris Industrial</td>
<td>7,400,000</td>
<td>1.61</td>
<td>20%</td>
<td>0.33</td>
</tr>
<tr>
<td>Rialto Commerce Center</td>
<td>3,475,000</td>
<td>1.44</td>
<td>29%</td>
<td>0.41</td>
</tr>
<tr>
<td>Rados Distribution Center</td>
<td>1,191,000</td>
<td>1.1</td>
<td>53%</td>
<td>0.59</td>
</tr>
<tr>
<td>Palm Industrial²</td>
<td>678,275</td>
<td>1.91</td>
<td>47%</td>
<td>0.90</td>
</tr>
<tr>
<td>West Ridge Commerce Center</td>
<td>937,260</td>
<td>1.69</td>
<td>54%</td>
<td>0.91</td>
</tr>
<tr>
<td>Mira Loma Commerce Center³</td>
<td>782,398</td>
<td>4.96</td>
<td>20%</td>
<td>1.01</td>
</tr>
</tbody>
</table>

**Project-specific Conditions:**
1 Limit number of trucks/day, and only 2010+ trucks
2 Menu of potential measures to limit AQ impacts to what was disclosed in EIR
3 Only 2007+ trucks
Overall Trip Rate vs. Building Size

- Individual Buildings from ITE studies
- Individual Buildings from Non-ITE studies

Overall Trip Rate vs. Building Size (trips per 1,000 square feet)

- 8 Buildings
- 25 Buildings

95th Percentile (voluntary default)

ITE Average

Study prepared in 2010
AQMD Staff Current Recommendation

- AQMD Staff current recommendation as voluntary default calculation:
  
  \[
  2.59 \text{ trips/1,000 ft}^2 \times 40\% \text{ Trucks} = 1.04 \text{ Trip/1,000 ft}^2
  \]

- Preferably use *project specific* data with substantial evidence
AQMD Staff Rationale and Basis

- Overall default trip rate of 2.59 trips/1,000 ft² provides:
  - Reasonable worst-case assumption sufficient for CEQA
  - Consistency with AQMD regional and localized thresholds based on peak daily activity
  - Default that can be replaced with project-specific data or an enforceable throughput limit

- Truck trip percentage of 40% represents:
  - Average percentage from all available studies (2)

- Peer reviewed and response to comments documented
  - Statistical methods
CEQA Legal Challenge

- 3.6 million ft² warehouse project in southern Rialto adjacent to homes
- Project approved in 2011
- Project used ITE overall trip rate of 1.44
- City and County of Riverside brought CEQA lawsuit over concerns about underestimation of truck traffic
- Lawsuit recently settled with Rialto agreeing to pay City and County of Riverside $3.5 million
## Key Comments on Staff Approach

<table>
<thead>
<tr>
<th>COMMENTS</th>
<th>RESPONSES</th>
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</thead>
<tbody>
<tr>
<td>A. 95% too conservative</td>
<td>A. Use in conjunction with peak daily thresholds, and as voluntary default</td>
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<tr>
<td>B. Local trip rates lower than national average</td>
<td>B. Average rates lower, but 95th % approach with local data yields similar results</td>
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<td>C. Staff analysis ‘cherry picked’ data</td>
<td>C. Staff used all available data and disclosed data development</td>
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<tr>
<td>D. Staff analysis assumed vacancy caused low rates</td>
<td>D. ‘Vacancy’ has little impact on 95th % (2.57 vs. 2.59);</td>
</tr>
<tr>
<td>E. Further study not necessary; staff should accept ITE</td>
<td>E. More robust data needed for CEQA air quality analysis</td>
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Current Efforts

- Convened two working groups to discuss study design
  - Stakeholder working group
    - warehouse developers,
    - local government technical staff,
    - environmental groups
  - Technical working group
    - Researchers, ITE representative, SCAG staff
- Engaged consultant to gather more robust data set for voluntary default factor
- Update CalEEMod upon completion of study (~6 months)
Proposed AQMD Warehouse Trip

Study Design

Phase I (6 months, $58,000)
1. Collect information about existing population of warehouses in AQMD region
2. Send out approximately 500 short business surveys
   - Follow up phone call to approximately 250 businesses
3. Classify 5 to 10 different types of high-cube warehouses based on surveys
4. Conduct on the ground trip counts
5. Determine trip rates for each warehouse classification

Phase II (2 months, $10-15,000)
1. Develop model using results from Phase I
Next Steps

- Continue working group meetings
- Periodic reports to MSC