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**

<table>
<thead>
<tr>
<th>Trip Rate</th>
<th>CalEEEMod default</th>
<th>ITE</th>
<th>NAIOP (2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>2.59</td>
<td>1.68</td>
<td>0.95</td>
</tr>
<tr>
<td>Trucks only</td>
<td>1.04</td>
<td>0.64</td>
<td>0.29</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td>14</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>

- **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)
  - Consultant provided list of 47 warehouses to potentially count
    - List based partially on facilities likely to provide access
    - List included building characteristics
    - SCAQMD staff rejected 17 that did not meet ‘high cube’ criteria
    - 13 additional sites did not provide site access
  - 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

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

Summary Table Based on Partial Data Set

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

* 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)

<table>
<thead>
<tr>
<th>Site</th>
<th>Truck Rate (2010 / 2013)</th>
<th>Overall Rate (2010 / 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Depot (Mira Loma)</td>
<td>0.08 / 0.42</td>
<td>0.49 / 0.86</td>
</tr>
<tr>
<td>K-Mart</td>
<td>0.21 / 0.23</td>
<td>0.63 / 0.51</td>
</tr>
</tbody>
</table>

- 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