SCAG Truck Model Updates
Warehousing, Transloading, and Port Activity

presented to the
SCAG Modeling Task Force

presented by
Cambridge Systematics, Inc.
Sean McAtee, Eric Bierce
with input from
Ramesh Thammiraju, Tara Rima, Dan Beagan, Michael Fischer

September 24, 2014
Refreshing the SCAG Truck Model

- High Cube Warehousing
- Updated Port Models
Truck Model Inputs

SED / LU Categories
1. Households
2. Agriculture, mining & construction;
3. Manufacturing
4. Retail
5. Transportation & warehousing
6. Government
7. Wholesale
8. Other
High Cube Warehousing

- Different trip generation rates than “general” warehousing
- Analytic needs related to regional analysis
- Add new employment categories

Transportation and Warehousing

- Transportation
- General Warehousing
- High Cube Warehousing
High Cube Warehousing

Source Data

» ITE Trip Generation Handbook (2012)
» Fontana Truck Study (2003)
» Florida DOT trip generation Study
» Inland Empire NAOIP
» Moreno Valley trip generation study
What exactly is a 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
Example High Cube Warehouse

- 2,800’
- 650’
- About 1,820 KSF
- 24-30’
Relative Trip Rates

High Cube Warehouses have fewer employees per KSF

<table>
<thead>
<tr>
<th>High Cube</th>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>More truck trips</td>
<td>Fewer truck trips</td>
</tr>
<tr>
<td>per Employee</td>
<td>per Employee</td>
</tr>
<tr>
<td>Fewer truck trips</td>
<td>More truck trips</td>
</tr>
<tr>
<td>per KSF</td>
<td>per KSF</td>
</tr>
</tbody>
</table>

- More truck trips per Employee
- Fewer truck trips per KSF
## Draft HDT Trip Rates

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Trips per KSF</th>
<th>Trips per Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Warehouse</td>
<td>1.068</td>
<td>0.673</td>
</tr>
<tr>
<td>HC Warehouse</td>
<td>0.560</td>
<td>0.767</td>
</tr>
<tr>
<td>Transportation*</td>
<td>n/a</td>
<td>0.658</td>
</tr>
</tbody>
</table>

*Transportation rates were specified to retain the overall Transportation and Warehousing trip rates from the original model*
Implementation

Land Use (KSF)

Employees

Warehouse Data

Activity Types

10-Category

8-Category
Updated Port Model

PortTAM Spreadsheet Process
- Container Terminal Inputs
- Non-Container Inputs
  - QuickTrip & TrainBuilder
    - Port Trips

PortTAM TransCAD Process
- Port Trip Distribution
- Port Trips
- Transload Model
  - Port Primary & Secondary Trips
    - PortTAM Assignment

Gate OD Survey

Extracted for SCAG Model
Specific Truck Types

Bobtail

Chassis
Specific Truck Types

Marine Container

20-Foot

40-Foot
Specific Truck Types

Domestic Container

45, 48, or 53 Foot
Intermodal Containers

Many marine and domestic containers are transferred to rail
Primary Port Trips

Near-Dock (< 5 miles) and Off-Dock Railyards

On-Dock Rail
no truck trips

Warehouse, Transload Facility, or other destination
Transloading

**Port Primary Truck Trips**

**Secondary Truck Trips:**
- Transload to Rail

**Secondary Truck Trips:**
- Transload to Truck

**Off-dock Railyard**

**Transload Facility**
Interim Model Outputs. Values displayed may not be consistent with final documents.

Source: PortTAM Val. Run #22
Transload/Domestic Trips

Interim Model Outputs. Values displayed may not be consistent with final documents.

Source: PortTAM Val. Run #22
Base Year Non-Port/IM Trips

Interim Model Outputs. Values displayed may not be consistent with final documents.

Source: PortTAM Val. Run #22
Conclusion

- SCAG’s Next Trip-Based Model version includes these updates
- PortTAM is updated continuously through environmental documents

Next Steps
- Continue to Maintain and monitor both models
- Periodic validation to vehicle class counts
- Integration with SCAG’s Activity Based Model
Thank You